

Europe and the Mediterranean World

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CONTENTS

PART I INTRODUCTION

Chapter 1	Looking Ahead	10
Chapter 2	Early Civilizations in Europe and the Mediterranean Lands	20

PART II THE LANDS AROUND THE MEDITERRANEAN SEA

Chapter 3	The Nature of the Mediterranean Lands	38
Chapter 4	Life in the Mediterranean Lands	52
Chapter 5	Mediterranean Countries of Europe	68
Chapter 6	Mediterranean Countries of Africa and Asia	94

PART III THE DESERT LANDS

Chapter 7	<i>The Nature of the Desert</i>	118
Chapter 8	Life in the Arid Lands	138
Chapter 9	Countries of the Arid Lands	166

PART IV THE LAND AND PEOPLE OF EUROPE

Chapter 10	Europe: Its Landforms, Climates, and Soils	198
Chapter 11	Economic Europe	218

PART V THE REGIONS OF EUROPE

Chapter 12	The Alpine Lands	232
Chapter 13	Southeastern Europe	246
Chapter 14	The Continental Industrial Region	259
Chapter 15	The North Sea-Baltic Plain	283
Chapter 16	Brittany and the Lowlands of France	294
Chapter 17	Fenno-Scandia	318
Chapter 18	The British Isles	334
Chapter 19	The Political Units of Europe	357
Glossary		374
Index		379

MAPS

World Political	8 & 9
-----------------	-------

CHAPTER 1

North Polar Map	10
Europe and the Mediterranean World: Population	14
Europe and the Mediterranean World: Climate	15
Europe and the Mediterranean World: Physical	18

CHAPTER 2

Ancient Civilizations	20
Roman Empire at Its Greatest Extent	32

CHAPTER 3

Lands with a Mediterranean Climate	40
Mediterranean Basin: Precipitation and Temperature	41
Mediterranean Basin: Physical-Political	42

CHAPTER 4

Europe and the Mediterranean World: Percentage of People in Agriculture	53
Europe and the Mediterranean World: Land Use and Vegetation	55
Europe and the Mediterranean World: Mediterranean Crops	58

CHAPTER 5

Spain, Portugal, and Southern France: Physical-Political	60
Europe and the Mediterranean World: Political	71
Mediterranean Europe: Land Use	74
Italy: Physical-Political	80
Rome and Vatican City	82
Greece and Albania: Physical-Political	88

CHAPTER 6

The Turkish Straits	96
The Holy Lands: Past and Present	100
Northwest Africa: Land Use	111

CHAPTER 7

Desert and Steppe Regions	121
---------------------------	-----

CHAPTER 8

The Muslim World	141
------------------	-----

CHAPTER 9

Nile Delta and Suez Canal	170
Middle East: Physical-Political	175
Dead Sea: Profile	188
The Fertile Crescent	190

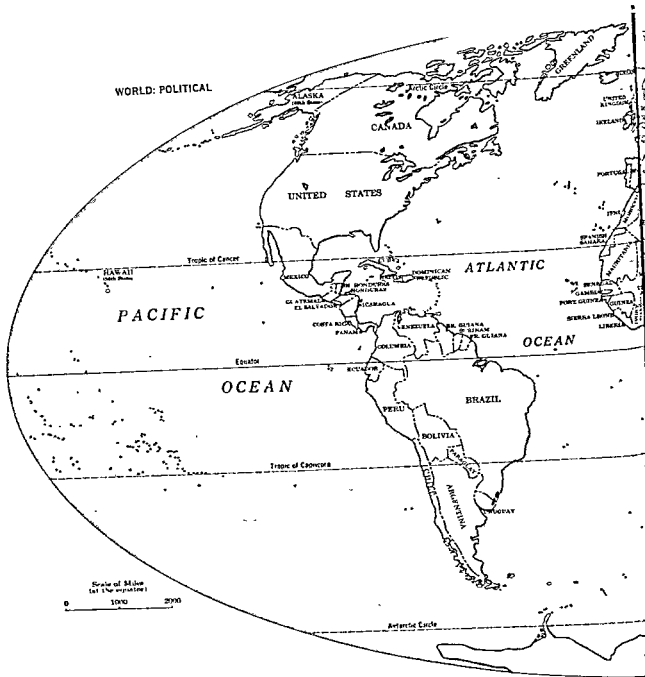
CHAPTER 10

CHAPTER 12	
Alpine Region: Physical-Political	231
Switzerland: Profile of Alps	235
Alpine Region: Land Use	242
CHAPTER 13	
Southeastern Europe: Physical-Political	247
Southeastern Europe: Land Use	255
CHAPTER 14	
Continental Industrial Region: Physical-Political	258
Continental Industrial Region: Iron and Coal Deposits	264
Continental Industrial Region: Land Use	271
CHAPTER 15	
North Sea-Baltic Plain: Physical-Political	282
North Sea-Baltic Plain: Land Use	290
CHAPTER 16	
<i>Brittany and the Lowlands of France: Physical-Political</i>	295
<i>Brittany and the Lowlands of France: Land Use</i>	306
CHAPTER 17	
Fenno-Scandia and Iceland: Physical-Political	319
Fenno-Scandia: Land Use	327
CHAPTER 18	
British Isles: Physical-Political	335
British Isles: Land Use	343
British Isles: Industrial Regions	345
British Isles: Iron and Coal Deposits	345
CHAPTER 19	
Europe: Communist and Non-Communist	358
Europe: Political	359
East and West Germany	368

CHARTS and DIAGRAMS

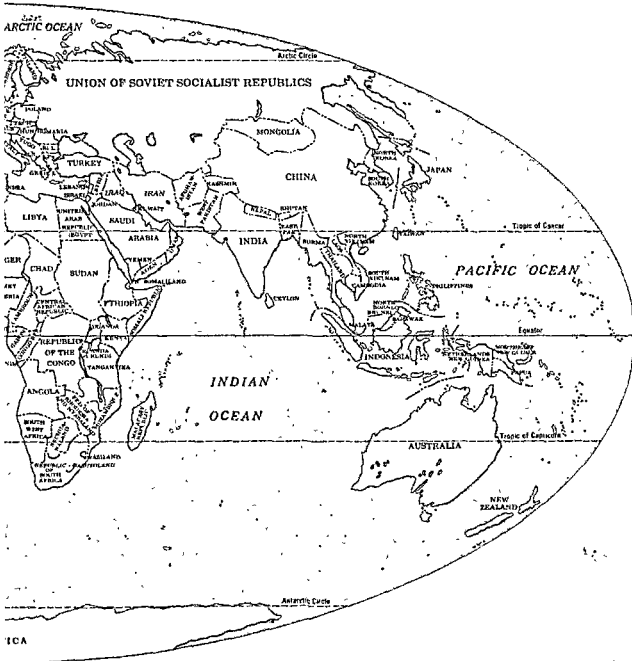
Climate Graph: Athens, Greece	43
Climate Graph: Cairo, Egypt	124
Cross Section of Artesian Well	131
Oil Production	153
<i>The Jordan Valley</i>	188
Formation of a Rift Valley	188
By-products of Petroleum	191
Mountain Vegetation	213
Climate Graph: Berlin, Germany	214
Hydroelectric Dam	237
Valleys Formed by Glaciers	320
From Wood to Paper	323
Climate Graph: Dublin, Ireland	336

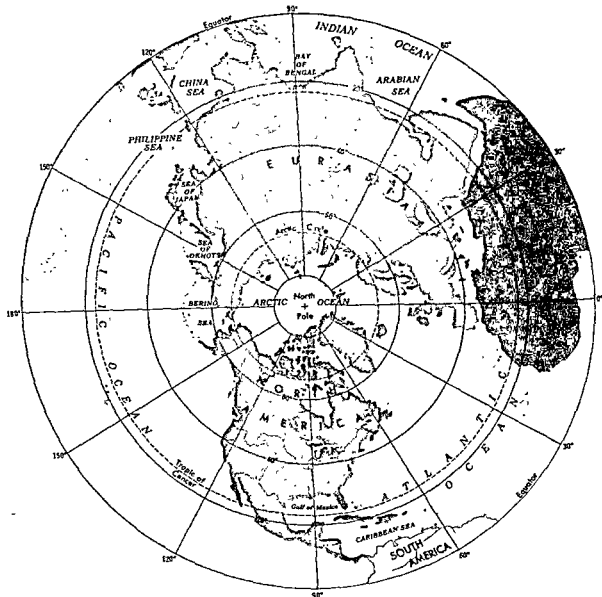
WORLD: POLITICAL



Part I

Introduction





CHAPTER 1 Looking Ahead

President sends Marines to Lebanon
Soviet Premier seals off East Berlin
Israel and Syria clash over border dispute

Behind each one of these headlines lies a story. What is the story? Why did it occur? And most important, where did it occur?

All of these stories happened in the region you are going to study this year. Every place has a geography of its own that makes it different from every other place. Because of this, you should learn about the geography of a place before you become involved with the story. The stories of Lebanon, East Berlin, Israel, and Syria are only a few of the stories that happened in our time in the lands of Europe and the Mediterranean World.

Eurasia's Name. In ancient times many people called the sun-set *ereb* and the sunrise *asu*. Sailors learned to use the *ereb* and the *asu* as their guides for sailing the Mediterranean Sea. They named the lands to the west, where the sun set, Europe. The lands to the east, where the sun came up, they called Asia. They did not know that the land of the setting sun was connected to the land of the rising sun. Today we know that this is so, and we call this combined land mass Eurasia.

Eurasia is the largest land mass on the earth. It is the only continent that is bordered by all the oceans. Some geographers call Eurasia two separate continents, Europe and Asia. This year you are going to study Europe and the Mediterranean World. The map on page 18 shows that this region includes lands on the continents of Europe, Asia, and Africa.

The United States is affected by events that take place in other lands. In 1958 United States Marines were sent to Lebanon to keep the peace. (Wide World)



THE CONTINENT OF EUROPE

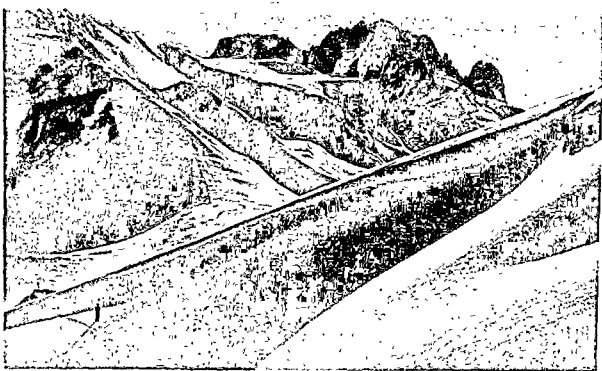
Most of the people in the United States and in all the Western Hemisphere look to Europe or Africa as the home of their ancestors. Africa hangs onto the great Eurasian land mass by a tiny bit of land, the Sinai Peninsula. At the western end of the Mediterranean Sea, Africa and Europe are separated by the Strait of Gibraltar. This strait is so narrow that on a very clear day you can stand on the African side and see Europe. In spite of this closeness, there is enough division for us to call Africa a separate continent.

It is easy to see where Europe is separated from Africa, but we have a problem when we look for its separation from Asia. Use the map on page 10 to study Eurasia carefully for a moment. Look especially at the coast line. Do you notice how many peninsulas jut out into the oceans and seas? Some of these, such as the Indian, Arabian, and Scandinavian peninsulas, are very large. The continent of Europe could be thought of as the largest of Eurasia's peninsulas.

The Ural Mountains are often named as the divide between Asia and Europe. They resemble the Appalachian Highlands of the United States in that they are rounded and smooth. At the northern and southern ends of this range there are a few peaks over 5,000 feet, but the center of the range does not rise beyond 2,600 feet. This is low enough to permit easy crossing. In most places these mountains are not even 100 miles wide. Rivers have cut convenient valleys through them. Roads and railroads cross them. The people who call Eurasia a continent say that the Urals are not a great enough barrier to split it into two distinct continents.

Europe, a Continent by Agreement. Europe is not divided from Asia in the way most continents are separated from one another. It cannot be called a continent on the basis of its physical geography. Europe is called a continent on the basis of its human geography. Europe is the homeland of people who scattered all over the world and traded or settled on every continent. These people took their languages, their customs, and their religions wherever they went.

One of the great things the European people did was to take the knowledge of the one true God wherever they went, so that other people could come to know and love Him. Many cultures have adopted Christianity. Yet many people feel that a non-Christian culture will someday be dominant in the world. We must work and pray that all cultures will someday adopt the most important feature of Western civilization, Christianity.



Europe is a small continent, but it has many different kinds of climate.
(Philip Gendreau, N.Y.: KLM Photo)



Nature Helped Europe. Europe has many natural features that make it one of the most favorable places in the world for men to live. The European continent is rich in the resources that men need. Though a small continent, Europe has many mountain ranges. Most of these mountain ranges run from east to west. Around them and in their valleys there are fertile plains on which

EUROPE AND THE MEDITERRANEAN WORLD: POPULATION

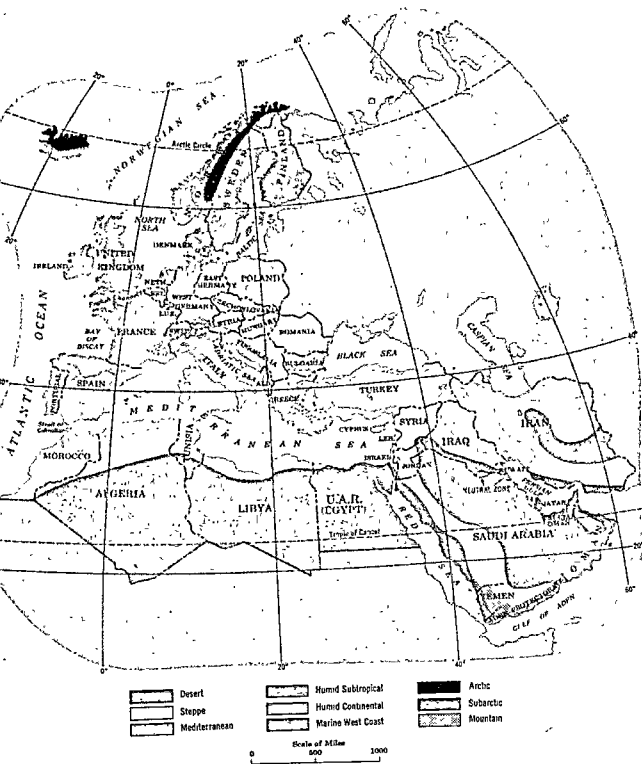


0 to 25 25 to 125 125 to 250 over 250

Scale of 500 miles

0 500 1000 miles

EUROPE AND THE MEDITERRANEAN WORLD CLIMATE



many people can live. Many navigable rivers help Europeans to trade and visit with each other and with people of other lands.

Europe's coast line winds in and out. It has many bays, gulfs, and seas. A jagged coast line like this makes for many fine harbors. People can have access to the ocean and the seas without having to travel very far. If we exclude the Soviet Union, there is no place in Europe that is more than 400 miles from the sea.

With such easy access to the sea, over the centuries many Europeans have been seafaring people. The great explorers, such as Columbus and Magellan, set out from European harbors. Through travel, Europeans spread their culture to other lands and gained colonies in many parts of the world.

The pleasant and refreshing climate of Europe is another natural advantage. Most parts of the continent have four seasons. There is only a small area in the north that is too cold for growing crops. Around the Mediterranean Sea, there are lands that have long, dry summers, and short, wet winters. Here farmers produce crops with the help of irrigation.

THE MEANING OF CLIMATE

You can be sure that no matter where people live, at one time or another they will talk about the weather. Weather is the condition of the air at a particular time and a particular place. You have learned that weather can be hot or cold, rainy or dry, windy or calm, but that it is usually not the same every day.

If you wish to know a place well, you should find out something about its climate. Climate is the general pattern of weather conditions that exists over a large area. It can be thought of as a puzzle. The pieces that make up this puzzle are the daily weather conditions. We speak of climate in terms of seasons rather than days. Climate depends on many things. One of these is the location of the land. You can predict much about the climate of a place if you can locate the place exactly on a map or globe.

Lines on Globes or Maps. In order to locate a place on a map or globe, you must know the latitude and longitude of the place. Last year you learned that we use lines of latitude to measure distance north or south of the equator. These lines are called parallels.

If you want to locate a place exactly on a map or globe, you must also know the longitude of the place. The lines that connect the North and South poles are called lines of longitude, or meridians. The distance between meridians is measured in degrees. These lines show how far east or west a place is from a line that is zero degrees longitude. This zero line from which we measure longi-

Weather forecasting is an important job. These two Navy "hurricane hunters" are reading a weather map while in flight. (Official U.S. Navy Photo)



tude is called the Prime Meridian. When you use longitude lines with the latitude lines that cross them, you will be able to find the exact location of any place on the earth.

Contrasts in Climate. Look at the climate map on page 15. Notice the belt of coastal land around the Mediterranean Sea labeled Mediterranean climate. Last year you studied this same type of climate as it exists in Southern California. The lands around the Mediterranean Sea that have this type of climate are called the Mediterranean Lands. Because these lands have the same climate, you will study them as a single region.

To the south and east of the Mediterranean Lands are the vast deserts of North Africa and Southwest Asia. This arid region is by far the largest expanse of desert in the world. Notice on the map on page 15 that the desert lands are fringed by narrow belts of steppe, or semiarid land. You will study the steppe and desert lands as a second region, the Arid Lands.

The third region you will study is the region north of the Mediterranean. The conditions of life in Europe north of the Mediterranean Lands are quite different from those in the Mediterranean Lands or the Arid Lands.

You have learned that climate affects the way people live and where they live. Compare the population map on page 14 with the climate map on page 15. You will see that much of the northern area has a cold climate and is sparsely populated. The few people who live there are fishermen, nomadic herders, or miners.

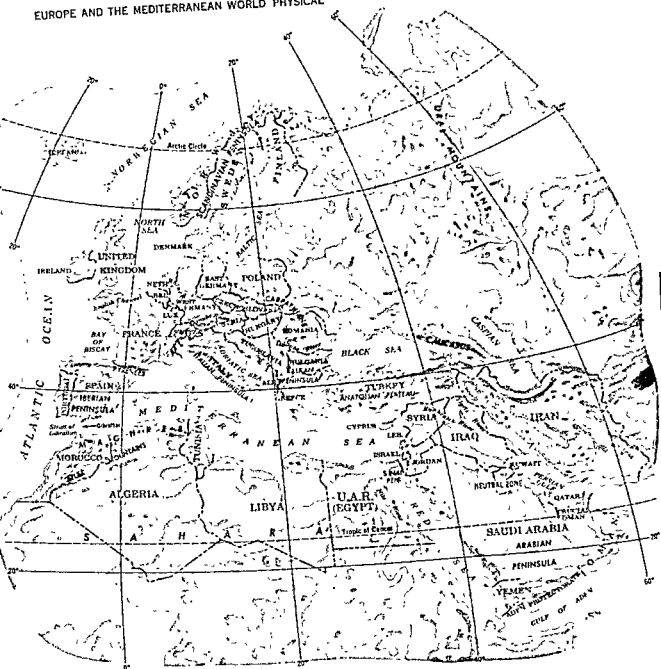
As your eyes travel southwest on the population map, they come to Europe's areas of dense population. Fertile soils, temperate climate, and abundant mineral resources have made Western Europe one of the richest, most highly industrialized, and most densely populated parts of the world.

A REGION OF CONTRASTS

There are over 30 countries in the region you are about to study. Some are so small that they are not shown on most maps. Others are more than twice as large as Texas. Some countries have very large plains, while others are very mountainous. There are contrasts between the harsh subarctic climate of Finland, and the dry hot desert climate of Libya. In addition to physical differences, there are many differences in languages and ways of life within the region.

Many similarities also exist in these regions. Studying the similarities and differences of Europe and the Mediterranean World will help you to understand the stories behind the stories.

EUROPE AND THE MEDITERRANEAN WORLD PHYSICAL

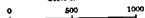


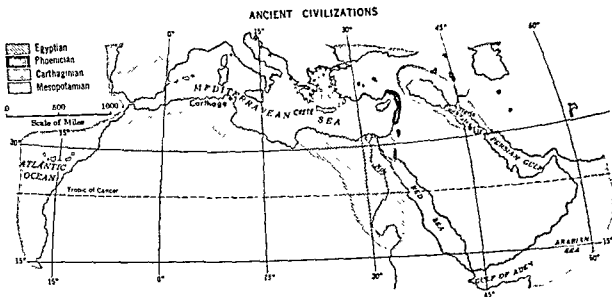
Below sea level	0 to 500	500 to 1,000	1,000 to 2,000	2,000 to 5,000	5,000 to 10,000	Over 10,000
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Elevations in feet

Scale of Miles





CHAPTER 2 Early Civilizations in Europe and the Mediterranean Lands

Have you ever wondered where the Garden of Eden was located? Some historians think it may have been located in a land called *Mesopotamia*. The map on page 20 will show you that Mesopotamia was the region between the Tigris and Euphrates rivers. In fact, the word Mesopotamia is a Greek word that means "land between the rivers."

Mesopotamia is often referred to as a "cradle of civilization," or a place where civilization grew from small beginnings. When we speak of civilization we mean a highly developed way of life in which the people are able to build cities, to read and write, and to develop forms of art, trade, and government.

There are other lands that we refer to as "cradles of civilization." Most of them are located on the shores of the Mediterranean.

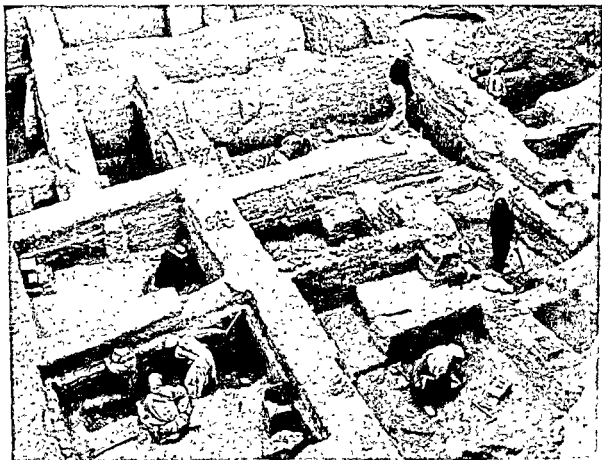
The Mediterranean Sea received its name from the ancient Romans, who at one time controlled the land on each of the three continents that surround this beautiful sea. The language of these Romans was Latin. The Latin words *medius* and *terra* mean *middle* and *land*. On the map on page 32 you will see why the Romans called the Mediterranean the sea of the middle lands.

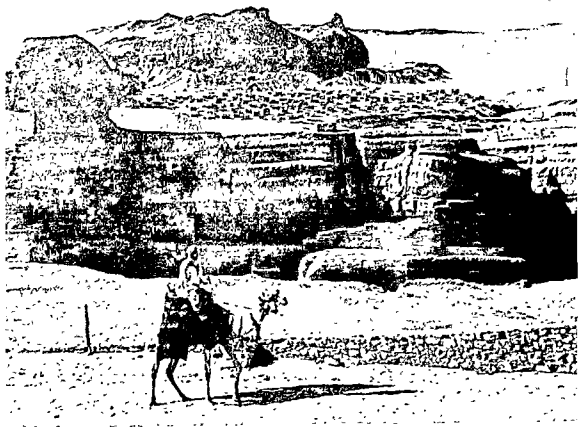
THE BRIDGELAND

Turn to the map on page 20 and locate the Nile River and the Tigris and Euphrates rivers. The fertile valleys of these rivers are near the Mediterranean Sea. The lands in which these valleys are located form the bridgeland between the continents of Africa, Asia, and Europe. The bridgeland of the Eurasian-African landmass has always been the crossroads of three continents.

Throughout history, people have traveled the roads and caravan routes of the bridgeland for exploration, for military purposes, or for trade. They sometimes found a place that had a good climate, water, and grass. Often they settled down to use and enjoy the abundance of these lands. As people began to settle more widely on the Mediterranean Lands, trade developed. In trading goods, the people also exchanged ideas, for ideas are part of the baggage of every traveler, soldier, and trader.

Ruins of ancient Mesopotamia have been found in Iraq. By studying these ruins, historians are able to tell us about Mesopotamian civilization. (UPI)

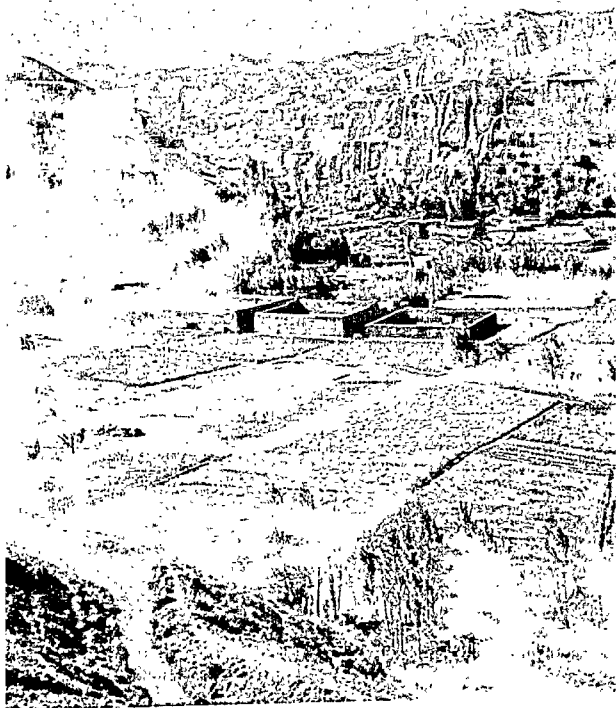




The Great Sphinx is one of the Seven Wonders of the Ancient World. It is 240 feet long and 66 feet high. Wind erosion has worn away parts of it, but the basic structure still stands as it did more than 4,800 years ago. (Swissair)

Egypt, Gift of the Nile. The Egyptian civilization began in the Nile Valley over 6,000 years ago. If you look at the land use and vegetation map on page 55, you will see that the narrow, fertile Nile Valley is protected on all sides by natural features. It is guarded on the west and east by a huge expanse of desert; on the north by the Mediterranean Sea; on the south by the marshes and rapids of the Nile. For many centuries, Egyptian civilization was able to grow and develop in peace in a country with many natural advantages.

The annual flooding of the Nile River provided Egypt with some of the most productive farm lands in the world. To have water to irrigate the land in such a dry, sunny climate was a great blessing. The river also provided the country with a natural means of communication.



The Iranian Plateau was once the center of the mighty Persian Empire. (Von Meiss from Photo Researchers)



Nomadic herders have roamed the
bridgeland since the time of Abraham.
(Arab Information Center)

Ancient monuments and records, preserved by the dry climate and isolation of the Nile Valley, show us that the Egyptians developed a stable government. They learned to read and write with picture symbols and to make paper from papyrus reeds that grew along the banks of the Nile. They built enormous buildings of stone, wove linen cloth from flax, and improved their crops through irrigation. The Egyptians devised a calendar of 365 days based on the flooding cycle of the Nile. They discovered some basic rules of science and arithmetic, rules for surveying, and rules for telling time. They learned many other things that have helped people and given them a better way of life.

The Civilization of Mesopotamia. Written records show us that settlers lived in the land between the Tigris and Euphrates rivers, which was called Mesopotamia, at least 4,000 years before Christ came on earth. Little is known of the earliest inhabitants of this land, but we do know that about 3,000 B.C. some people from the mountainous regions of what are now Turkey and Iran settled there. These settlers developed a very high degree of civilization

and invented a form of writing. They worked out the division of the circle into 360 degrees and the hour into 60 minutes.

Invasion after invasion came across Mesopotamia, which was part of the bridgeland. Many of the invaders crushed the people and created new empires. About 500 years before the time of Christ, Mesopotamia was ruled by Persia and became part of the Persian Empire. The present-day country of Iraq was created out of ancient Mesopotamia. The land now called Iran was at one time called Persia.

The Hebrews. In the ancient city of Ur in the valley of the Tigris-Euphrates, a great family of nomads grew powerful. Their leader was a holy man named Abraham. He was recognized as the chief of this tribe which was known as the Hebrews. Abraham believed in the one true God and passed this belief on to his descendants. The sons of Abraham and their children and their children's children all lived the life of nomads. They pastured their flocks of sheep and goats from Mesopotamia to Canaan.

There came a time when the Hebrews were the victims of a great famine. The Bible tells the story of that famine and how hungry men went great distances to obtain food. The sons of Jacob went for grain to Egypt, where some years before one of their brothers, Joseph, had been sold into slavery. To their surprise, Joseph had become the favorite of the Pharaoh, the Egyptian king. Joseph invited the hungry Hebrews to come and live near the plentiful fields of the Nile Valley. They lived in freedom and plenty for some years, but later the Hebrews were made slaves by the Egyptians.

During the twelfth century before the birth of Christ, the Hebrews banded together under the leadership of Moses and gained their freedom. They escaped over the Red Sea and wandered for forty years in the desert on the Sinai Peninsula. Finally they entered the Promised Land, the land of Canaan, which was part of the land that later became Palestine. Today Palestine is divided between Israel and Jordan. Find Mount Sinai on a map. It is located in the Sinai Desert.

But the land of Canaan did not prove a peaceful home. The Hebrews suffered the same fate as other people living in the bridgeland: one army after another warred on them. Once they were taken captive by the Babylonians, who then occupied the Tigris-Euphrates river valley. Through all of this suffering, they obeyed the Ten Commandments which God had given to Moses and worshipped the one true God. The Old Testament tells the story of the Hebrews, and from that story you can learn a good deal about their way of life.

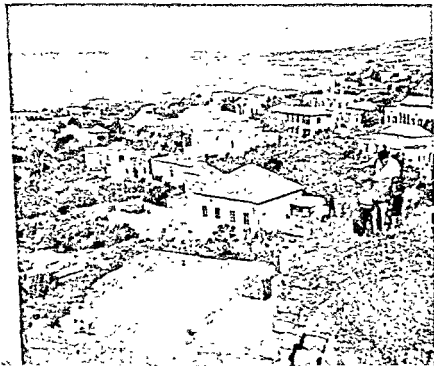
The Monastery of St. Catherine is located on the rugged Sinai Peninsula. (U.A.R. Tourist Office)





Tangier, on the northwest coast of Africa, overlooks the Strait of Gibraltar. It was one of the early Phoenician colonies. (Holzgraf from Monkmeyer)

The ruins of Byblos lie near the modern town of Jubayl, Lebanon. (Hufner from Shostal)



The Seafaring Phoenicians. North of the land of the Hebrews, on the narrow coastal strips and tiny islands of present-day Lebanon and Syria, another people made their home. These people were the Phoenicians. The Lebanon Mountains and the desert behind them formed a barrier to keep out warring nations. The Phoenicians took advantage of this protection by building cities facing the sea.

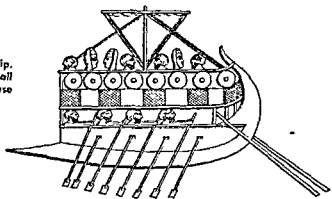
Since the poor soil of their land would not produce much food, the Phoenicians made articles they could trade for food and raw materials. They traded with the Minoans of Crete, with the Spaniards, from whom they got copper, and with the Britons, from whom they obtained tin. The Phoenicians were the first to combine tin with copper to make bronze, which they used for making weapons.

The Phoenicians also set up colonies at Tangier, Marseille, Monaco, Cadiz, and Carthage, which was near present-day Tunis. They guarded the western entrance to the Mediterranean from the rock fortress of Gibraltar. Their colonies were prosperous trade centers from which goods were sent by caravan to other Mediterranean Lands and by ship to lands beyond the sea.

The name of "missionaries of civilization" has been given to the Phoenicians. Their influence was felt in all the Mediterranean Lands. They were skilled in making glass and metalware, in weaving and dyeing fine cloth. From the Phoenicians other Mediterranean people learned how to build sturdy boats propelled by oars and sails and how to navigate by the stars at night and by the sun during the day.

The most lasting contribution of the Phoenicians to Western civilization was the alphabet. For their bookkeeping, traders needed an easier writing system than the Egyptian picture writing. They devised 22 letters on which our alphabet is based. Their first books were written in the city of Byblos on rolls of papyrus from Egypt. Can you see where the word *Bible* might have come from?

Drawing of a Phoenician ship.
Phoenician sailors traveled all
over the Mediterranean in these
ships. (Ewing Galloway)



The Culture of Greece. The Mediterranean Sea, stretching from the shores of Southwest Asia to the Atlantic, seemed to beckon settlers to the lands at its western end. Civilization moved northwestward from Egypt and Mesopotamia. It was easy for the ships of the early civilized peoples, such as the Phoenicians and the Egyptians, to reach ports in Greece. On the map on page 18 look at the location of Greece on a peninsula that juts out into the Mediterranean Sea. Of what use would the islands of the Aegean Sea be in the progress of people moving northwestward?

The Greeks developed a ruggedness and independence of character as a result of their environment. Isolated pocket valleys, surrounded by mountains, and narrow, indented coastal plains made communication difficult. This forced the people to rely upon their own resources.

Because of the difficulty of communication, cities were independent of one another. As the power of a city increased, its government began to dominate the area around it. The city raised an army for protection and for control of surrounding territory. These independent Greek cities were called city-states. City-states are examples of political units such as a state or nation is today. A political unit has the power to make and to enforce laws and to judge when the law is violated.

Although during much of the history of ancient Greece there was fighting among the city-states, the people had much in common. They all spoke the Greek language, worshipped similar gods, and had many similar customs. Even though they fought among themselves, the Greek city-states were always willing to unite to fight a common enemy.

Many separate city-states grew up in Greece because the mountainous land isolated people from one another. (Hint: from Photo Researchers)





In addition to being mountainous, Greece had many natural harbors. With good shelter for their boats, it is not surprising to find the Greeks becoming a seafaring people. They sailed every route of the Mediterranean from east to west. Greek adventurers, seeking a new life, settled in the colonies around the Mediterranean. Where they settled they taught the people some of their own achievements. One such skill was how to caulk their boats with black pitch which they brought from the earliest known oil field in the world on the island of Zante. Caulking was done by forcing boiling pitch into the cracks or seams between the planks of a boat to make it completely watertight.

The Greeks also had found that the olive tree and the grape vine were well suited to the Mediterranean climate of their homeland. Wherever they settled they planted vines and olive trees. Today these are a familiar sight in every Mediterranean landscape.

About eight centuries before the birth of Christ, the Greeks were meeting each other in large numbers at the great athletic contests known as the Olympic Games. These games provided a chance for people from different parts of Greece to become acquainted with one another. Great numbers of people traveled to see and take part in the events. This caused improvements in trade and communications. Another result of the Olympic meetings was that the people who met at them began to share ideas of art, philosophy, and literature. Our culture will always be indebted to the Greeks for the ideas they developed. Greek orators, philosophers, poets, artists, and playwrights produced works that have seldom been matched in the history of the world.

Greece's indented coast line has many natural harbors. No part of Greece is more than 90 miles from the sea.
(Holtan from Photo Researchers)

In addition, the Greeks spent much of their leisure studying and discussing problems of government. Out of these discussions came new ideas. The Greeks set up a system of government in which the citizens were allowed to make the rules that they should obey. These rules then became laws. This method of having the people decide what is best for them is known as democracy. The people of our country cherish the system of democracy, or government by the people.

The armies of Alexander the Great carried the Greek way of life and thought to many parts of the world. However, the time came when the glory of Greece gave way to the power of Rome. The extent of Greek influence on Roman culture was remarkable. Greek ideas of government and art became the basis of Roman ideas. The use of coins, which had been started by the Greeks, and the use of a written alphabet, were also adopted by the Romans.



Alexander the Great brought the Greek way of life to Asia. He united the cultures of Greece and Asia. (Library of Congress)



The Supremacy of Rome. If you look at the map on page 18 you will see that on the west and south a few large islands hem the rather smooth coast line of Italy. The many tiny islands and the jagged coast line that attracted the Greeks to the sea are missing in Italy. In spite of this, as Rome rose to power, it took over from Greece control of the Mediterranean Sea. Rome's navy was able to watch over the whole coastal area.

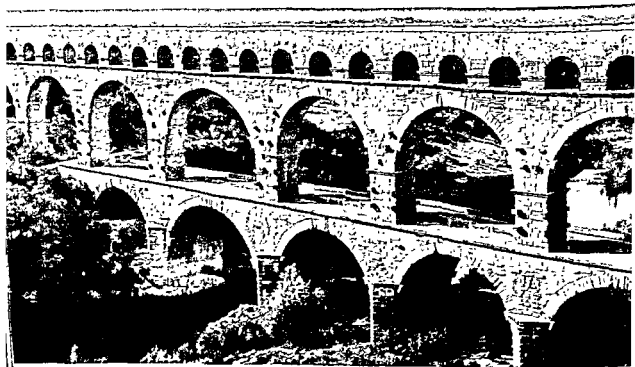
In order to enforce Rome's laws and widen her influence through conquest, large Roman armies were raised and trained. Roman soldiers pushed forward to all parts of the known world. Roads were built to make overland travel easy in the extensive empire. It is possible to find sections of the fine Roman roads in use today for modern traffic.

When Rome conquered new lands, it was necessary to find a way to keep the conquered people under control. An elaborate system of law was developed, which stands as Rome's major contribution to civilization. Many a code, or body of law, owes its origin to the ancient Romans.

The Romans had made efforts to establish law and order. But there was not yet any organized help for the poor, the sick, and the suffering. No one had thought of building hospitals or homes for orphans. Into such a world Christ came to teach men the law of love for God and for each other. When St. Peter and the other apostles established their headquarters in Rome, they were able to travel the length and breadth of the known world fairly easily. Their message of love was Christianity's contribution to world civilization.

Of all sporting events, none has as rich a history as the Olympics. The Olympic Games as we know them today were revived in 1896. (*Wide World*)

ROMAN EMPIRE AT ITS GREATEST EXTENT



Aqueducts are used to transport water. Many aqueducts constructed by the Romans are still in use today. (Philip Gendreau, N.Y.)

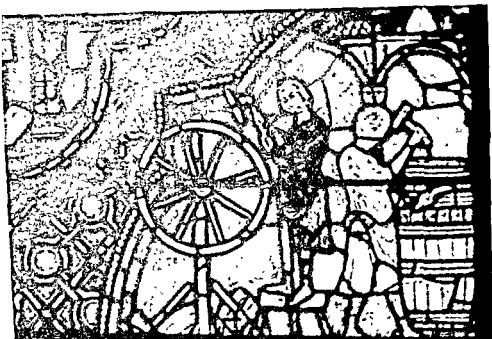
The Spread of Islam. During the centuries that followed the fall of the Roman Empire, Christian teachings were gradually spreading. At this time, another religious group had appeared in Southwest Asia. In the seventh century, on the Arabian Peninsula, a man named Mohammed started to preach a new religion, now known as Islam. Mohammed believed in one God, whom he called Allah. He claimed to have many revelations from God, which he wrote in a book called the *Koran*. To the follower of Mohammed, the *Koran* is what the Bible is to the Christian. It contains the laws that must be carried out by the true believer of Islam.

One of the commands of Mohammed was to spread the Muslim religion by conquest. This led his Arab followers to conquer all of Southwest Asia and North Africa. There were bitter struggles between Christians and Muslims when the Muslims tried to gain a foothold in Europe. Eventually they were stopped at Tours in France. Many centuries later the Turks, who had also become Muslims, were stopped at Vienna after they had held eastern Europe for a long time.

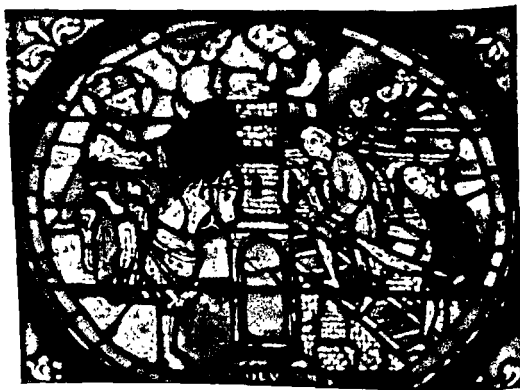
Many Muslims crossed the Strait of Gibraltar from Africa into Spain, where they settled and became known as the Moors. The Moors kept alive the light of learning handed on from the Greeks. They continued the study of astronomy, mathematics, philosophy, and the fine arts. They developed a distinctive style of architecture. Their culture centered strongly around their common Arabic language and their common religion.

Christian Culture. Christianity was weakened by the struggles and wars with Islam, which were called the Crusades. The Crusader armies were made up of men from every country where Christianity had been adopted. The fight against the enemies of Christianity brought some unity to the Christian world. The unity of European culture through the use of Latin as a common language remained.

To preserve the learning handed down from Greece and Rome, Europeans gave much attention to education. Many schools and universities were founded. Often these centers of education were in monasteries, from which priests and missionaries went to spread the knowledge of God and the love of learning. From these schools and universities also came men who had been taught to value art in every form. Music, painting, sculpture, and architecture were studied. Men built beautiful buildings, usually in stone. As you read this book you will see pictures of the great cathedrals, churches, museums, and palaces that house many art treasures. In many of them you can trace the influence of Greek and Roman art, as for example in the beautiful domes and arches of the buildings.



The stained-glass windows in the cathedral of Chartres, France are among the oldest and most beautiful in the world. (Top) Men making barrels. (*Three Lions*) (Bottom) A French king directing the construction of a church. (*European Art Color Slide Co.*)

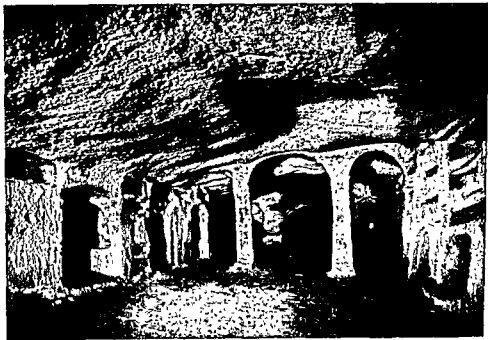


During the fifteenth century, Europeans sailed around Africa and across the Atlantic. They visited new lands and brought home new customs and ideas. The pattern of culture of the Old World broadened to meet the demands and the influence of trade between nations.

You have traveled far too fast in this chapter. You have come like a lightning flash through centuries when many, many interesting things were happening which we have not mentioned here. You will fill in the gaps in your history lessons. But we hope you have learned enough of the cultural heritage of the peoples of Europe and the Mediterranean Lands to arouse your interest.

As you learn about the geography of these lands, you will learn to know the people better. You will see the people in their present-day surroundings. You will perhaps be able to recognize some similarities between all men, and you will be ready to admire the good qualities of people who have faced problems and solved them. You will understand more readily the problems to be faced today in this whole region. And, having looked carefully at the entire picture, you may even have some solutions to propose.

Tunnels below ground, called catacombs, were used by early Christians for services and burials. The catacombs shown here are outside the city walls of Naples. (Fototeca Unione, Roma)



WORKSHOP

I. CHAPTER REVIEW

A. Terms to Know

bridgeland	city state
marsh	caulk
rapids	Olympic Games
irrigation	democracy
famine	Koran
pocket valley	code of law

B. Places to Locate

Mesopotamia	Egypt
Tigris River	Red Sea
Euphrates River	Israel
Nile River	Jordan
Turkey	Lebanon
Iran	Syria
Iraq	Rome

C. Review Questions

1. What is a "cradle of civilization"? Why is this title given to Mesopotamia and Egypt?
2. List the contributions of ancient Egypt and Mesopotamia.
3. Describe briefly the history of the Hebrews.
4. What were the contributions of the ancient Greeks to civilization?
5. What is Islam? List some of the major beliefs of Islam.

II. OBSERVATION ROOM

1. Early civilizations spread more easily in the lands around the Mediterranean than very far inland. Study the map on page 18 and see if you can list three reasons for this.
2. Study the map on page 42. List the names of all the modern countries whose borders touch the Mediterranean Sea.

III. THOUGHTFUL CORNER

1. Why have the Phoenicians been given the name of "missionaries of civilization"?
2. What is culture? What is Christian culture? Explain briefly how Christian culture has been handed down through the centuries and list examples of Christian culture today.

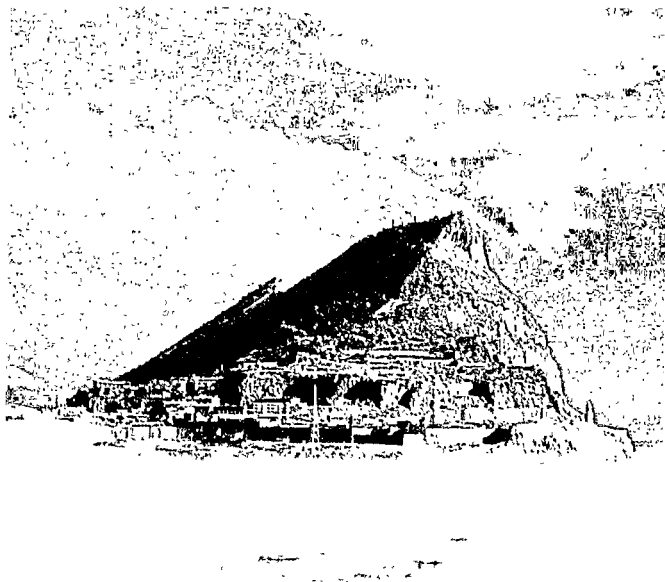
IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. You are the captain of an ancient Phoenician trading ship. Choose a group to be your crew and another to be "villagers." Dramatize a day in the life of these Phoenicians as they trade and talk with the villagers, etc. Be sure to show how they were "missionaries of civilization."
2. Do some research on Olympic Games held in recent years on different continents. Give a report on your findings.

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Part II

The Lands Around the Mediterranean Sea

The Rock of Gibraltar stands at the western entrance to the Mediterranean Sea. The blue, crystal-clear waters of the Mediterranean touch the shores of three continents—Africa, Asia, and Europe. Although they are located on three continents, the countries bordering the Mediterranean have much in common. (Philip Gendreau, N.Y.)



Winter rain and snow feed the rivers in the rugged Atlas Mountains of North Africa. These rivers run dry in other seasons for lack of water. (Brault from Photo Researchers)

CHAPTER 3

The Nature of the Mediterranean Lands

The Mediterranean Lands that you will study in this and the following four chapters are lands which have three things in common. They border the Mediterranean Sea, have a Mediterranean climate, and have large areas of mountainous land. The Mediterranean Lands do not stretch around the sea in an unbroken line, because some parts of the coast are too hot and dry to be included in this region. For example, much of northern Africa is desert and cannot be classified as Mediterranean in climate.

Although the Mediterranean Lands lie on three separate continents, they have many geographical features in common. The climate, the hilly, eroded land, and the scarcity of natural resources are similar in all the lands. As a result, the people face many common problems, and while their languages may be different, their way of life is the same. That is why we study the Mediterranean Lands as a geographical unit.

The Mediterranean Sea is sprinkled with islands of all sizes. The African coast is straight, with few harbors, but the European coast is very jagged. See if you can locate Europe's three major peninsulas in the Mediterranean. Spain and Portugal form the Iberian Peninsula at the western end of the sea. The Italian Peninsula is in the central Mediterranean, and the Balkan Peninsula, which has Greece at its tip, is farther east. West of the Italian Peninsula stretches the Mediterranean portion of France. East of the Italian Peninsula are the Adriatic Sea, an arm of the Mediterranean, and the coastal lands of Albania and Yugoslavia. Both Albania and Yugoslavia are located on the Balkan Peninsula.

At the Asian end of the Mediterranean Sea, Turkey forms a peninsula between the Mediterranean and Black seas. Southward from Turkey we come to Syria, Lebanon, and Israel. All these countries have arid regions, but their important coastal plains have a Mediterranean climate.

Sandy beaches lie along the indented Mediterranean coast of southern Spain. (Annan Photo Features)



EXTENT OF THE MEDITERRANEAN CLIMATE



From Israel we must cross the deserts of Egypt and Libya before we come to another Mediterranean Land. Along the northwest coast of Africa, traveling toward the west we come to the coastal areas of Tunisia, Algeria, and Morocco, known as the Maghreb. The Maghreb has warm dry summers and cool damp winters, as do the rest of the Mediterranean Lands. Rain-bearing winter winds are trapped here by the coastal mountains. Inland from the mountains, the southern parts of Tunisia, Algeria, and Morocco are desert wastelands.

MEDITERRANEAN CLIMATE

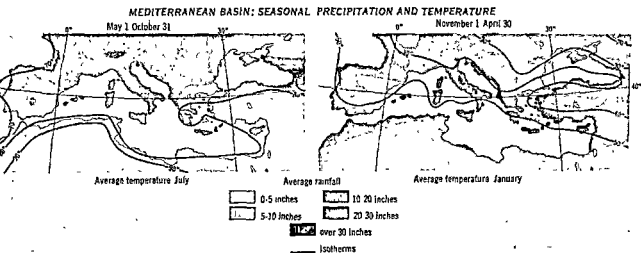
Last year you learned that southern California has the hot dry summers and mild rainy winters that are typical of a Mediterranean climate. This type of climate is found in many parts of the world. Only in the lands around the Mediterranean Sea, however, does this climate extend over such a large area. The Mediterranean climate is one of the most agreeable in the world. Through the summer and most of the winter the sun shines brightly in a cloudless blue sky. The winter brings occasional storms.

Compare the two maps on this page. They show the rainfall and temperature in the Mediterranean Basin for two different seasons. The first shows the average summer rainfall. The north coast of Africa, for example, receives less than 10 inches of rain in summer, while parts of southern Europe receive a little more. The second map shows the average winter rainfall. You can see that in all the Mediterranean Lands the rainfall is heavier in the winter. Can you tell which lands have the most rainfall?

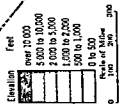
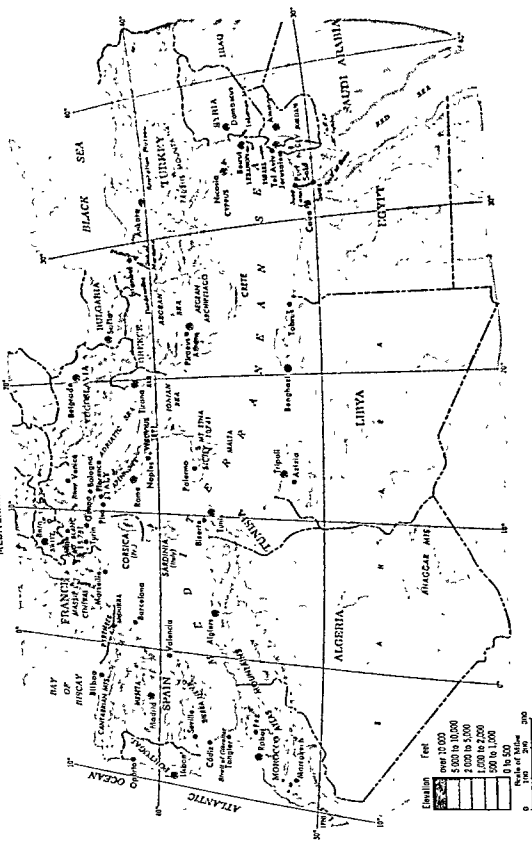
The lines drawn on the maps are used by geographers to show average temperatures for a certain time of the year. They are called *isotherms*. The isotherms in the left-hand map show average temperatures for July. Look at the isotherm marked 90° F. If you lived anywhere on this line, you could expect an average temperature of 90° F. during the month of July. If you lived along the north coast of Africa, in an area which lies between the 80° F. and 90° F. isotherms, you could expect an average temperature between 80° F. and 90° F. in July. Temperatures on the European coast at that time of year are lower.

All the Mediterranean Lands have a long growing season. Frost and snow are rare on the coastal lowlands, but in winter snow falls on all the coastal mountains. During the dry summers, melting snow from the mountain peaks supplies the lowlands with valuable water for irrigation.

A Climate of Transition. The Mediterranean climate is a "transition" climate between the dry steppe and desert climates of North Africa and Asia and the humid climates of middle and northern Europe. The mild winters of the Mediterranean Lands are like the cool summer weather in parts of northern Europe.



MEDITERRANEAN BASIN: PHYSICAL-POLITICAL



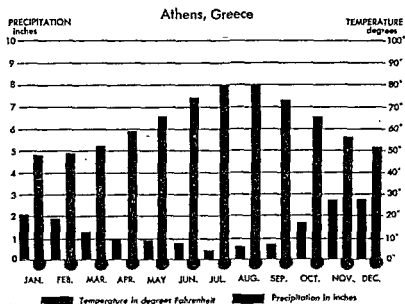
Many vacationers spend part of the winter in the sunny Mediterranean resorts. In summer, cool but humid sea breezes lower the high afternoon temperatures along the coast. However, some days in spring can be unpleasant when a dry wind known as the *sirocco* sweeps north from the Sahara. The dust-laden *sirocco* may send the temperature soaring to 100° F. The intense dry heat causes discomfort and kills vegetation. At times the *sirocco* blows northward across the Mediterranean Sea to meet a mass of cold, moist air, bringing down a muddy rain. Wet or dry, the *sirocco* is never a pleasant experience.

Most of the rain comes in the cooler months, so it does not evaporate rapidly. Because of this, a little goes a long way to water the crops. Sometimes the rain falls in thundershowers, causing flash floods which do considerable damage. In summer, the rivers dry up or become mere trickles unless they are fed from melting mountain snows. The lack of rainfall in summer makes irrigation necessary for summer crops.

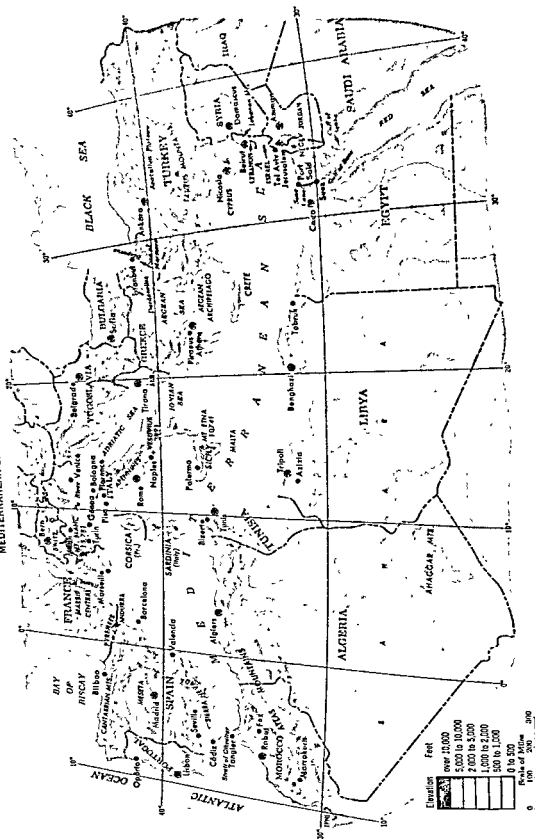
MEDITERRANEAN VEGETATION

Plants that grow naturally in the Mediterranean Lands have features that help them survive without water during dry periods. These features include thick bark, thorns, and small, narrow, leathery leaves that slow down evaporation. Most of the trees are low, stunted, and gnarled. Low, woody shrubs and stiff, bushy plants often thrive where trees cannot grow. There are some

Rainfall is heavier in winter than in summer in regions with a Mediterranean climate.



MEDITERRANEAN BASIN: PHYSICAL-POLITICAL



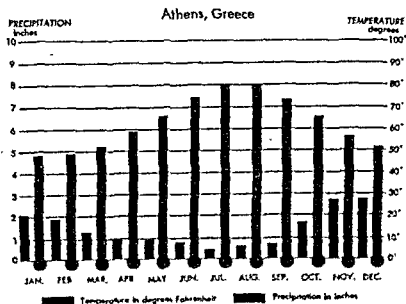
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MEDITERRANEAN VEGETATION

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Rainfall is heavier in winter than in summer in regions with a Mediterranean climate.



broadleaf evergreen forests around the Mediterranean, but they differ greatly from the forests of the humid regions. In Mediterranean forests, trees are widely spaced and not very tall.

In the colder countries, plants sleep, or become dormant, in the winter. But in the Mediterranean Lands most of the trees keep their leaves through the winter. Some of the trees renew their leaves in the spring.

The cork oak grows well in Mediterranean countries such as Portugal. It gets its name from its thick bark of cork, which helps the tree to retain water. This is one of nature's ways of protecting trees where water is scarce.

Olive trees once grew wild in the Mediterranean Lands. You can read in the Old Testament that the dove which Noah sent out of the ark after the deluge came back "carrying a bough of olive tree with green leaves in her mouth." When people found uses for olives, they began to cultivate them in groves. No tree is more typical of the Mediterranean than the drought-resistant olive. Its small leathery leaves stand out stiffly on twisted branches that jut from a great gnarled trunk. The thick bark and narrow leaves of the olive tree are typical of the moisture-holding qualities of Mediterranean plant life.

(Left) This tree will take ten years to grow another coat of cork-oak bark. (French Embassy Press & Information Division)

(Right) Harvesting the olives on any Mediterranean farm keeps the whole family busy. (KLM Photo by Fritz Henle)





Undersized trees and bushes, called "scrub," cover much of the Mediterranean landscape. These stunted plants are of great value. They control erosion by holding the soil and by slowing down the runoff of winter rains. In ancient times, there were many forests on the mountains and hillsides. You have read in the Bible about the mighty cedars of Lebanon. Today the ancient cedar trees on the hillsides of Lebanon number less than a dozen or so, and the younger cedar trees are not numerous. Because of the destruction of trees by man, and overgrazing by animals, wind and rain have left many gouged and barren slopes on the shores of the Mediterranean. Grasses that are good for animal fodder do not thrive in this region. Either they dry up and turn brown during the rainless summer, or they are eaten down to the roots by goats. Without vegetation, the land is exposed to the weather.

Sheep search for juicy grasses in the stunted scrub of this Moroccan hillside. (Hilty from Monkmeyer)

MEDITERRANEAN SOILS

The hilly Mediterranean Lands have a variety of soils. Most of the soils are not very fertile, particularly those on the hillsides. They are poor in plant minerals and low in *humus*. Humus is the name given to the very fertile material formed when plants die and decay. The Mediterranean farmer gets small returns from his poor soil and must toil endlessly to make a livelihood.

Probably the best soils are those of the small *alluvial fans* in the foothills of the mountain ranges. An alluvial fan is made by soil and gravel carried down a mountain valley by a rushing stream. When the stream reaches more level land, it slows down and deposits soil. The soil gradually spreads out in a fan shape between the mountains. Such soil deposits left by moving water are called *alluvium*. Many of the alluvial fans along the Mediterranean were once marshes. Gradually they were filled in by deposits of soil from the hillside streams. Today the marshes that remain are being turned into fertile farm land by the more progressive farmers.

Along the European coast of the Mediterranean are many small *alluvial plains*, which are also extremely fertile. These small plains lie between headlands that jut out into the sea, or around coves and bays. They are formed by rivers which carry alluvium right down to the sea and deposit it there. The plains have been built up gradually over the centuries. These small plains are densely populated, since their fertile land can support many people.

The land around Pisa in Italy is an example of an alluvial plain. Pisa was once on the coast. Now it stands about 10 miles from the sea, surrounded by fertile alluvium deposited by the Arno River.

MEDITERRANEAN RELIEF

Relief is a word used to describe the difference in elevation of landforms. A glance at the map on page 42 shows us that mountains or hills border most of the Mediterranean. Between the mountains, small but important alluvial plains have formed. Rivers and streams cross the plains to empty into the sea.

There are two large plateaus in the Mediterranean Lands, one in Spain and the other in Turkey. The Meseta is the central plateau of Spain. Between 2,000 and 3,000 feet above sea level, it is cut by deep river valleys and crossed by high mountain ranges. The Anatolian Plateau in Turkey is circled by a ring of mountains. To the north of the plateau are the Pontic Mountains. The Taurus Mountains border the southern rim of the plateau, separating it from the Mediterranean. Other mountains stretch westward from Turkey across the Aegean Sea. Here the mountains are below sea level, and their peaks form the islands that we call the Aegean Archipelago. *Archipelago* is the name we give to a group of islands.

High mountains again appear on the mainland of Greece. They continue up the Balkan Peninsula and finally join the Alpine arc that sweeps around northern Italy into southeastern France.



The Po River Valley in northern Italy is one of the few wide plains in the Mediterranean Lands. The Po Valley is almost enclosed by the are formed by the Alps. South of the Po Valley, the Apennine Mountains run down the center of Italy to the large island of Sicily at the foot of the peninsula. Mount Etna, in Sicily, is the highest peak of the Apennines. It is a volcano 11,000 feet high. Another active volcano in the same mountain range is Mount Vesuvius, near Naples, which is only 4,000 feet high.

The coastal plain of southern France is part of the Mediterranean Lands. Mediterranean conditions extend as far north as the foothills of the Massif Central, which rises northwest of the coastal plain. Find the Massif Central on your relief map on page 42. At its western end the French coastal plain continues into Spain. Here it is almost pinched out by the eastern end of the Pyrenees Mountains, which form a natural barrier between France and Spain. Find them on your relief map on page 42.

South of the Pyrenees, the Iberian Plateau is broken by a number of smaller mountain ranges. Most of these ranges run east and west. The Cantabrian Mountains in the north border the Bay of Biscay. They shield the plateau to the south from the cool, moist Atlantic winds. The northern slopes of the Cantabrians and the hilly northern coast of Spain are too cool and wet to be called Mediterranean in climate. The Sierra Nevada, in the south of

Since the tenth century, Turks have hollowed out these wind-eroded rocks and made homes in them. (International Communications Foundation)



It is costly and difficult to build and repair roads in mountainous country. This mountain pass leads from Italy into Switzerland. (Philip Gendreau, N.Y.)

Spain, is part of a mountain range that crosses the sea to Africa and curves around to form the mountains of northern Morocco. This mountain arc is cut in two by the narrow Strait of Gibraltar. Trace it on your map.

A much larger mountain range called the Atlas Mountains stretches across northwest Africa. Part of the great Sahara lies in the rain shadow of these mountains. North of the Atlas Mountains are the parts of Tunisia, Algeria, and Morocco called the Maghreb. Earlier in this chapter you learned that the Atlas Mountains catch rain and snow from the westerly winds in winter and so provide water to irrigate the land.

Transportation Problems. You have seen how the Mediterranean Lands are broken up by mountains. The mountain barriers have kept people isolated from each other. Greece, especially, is divided into steep valleys separated by high mountain walls. In the past, this has made it difficult to unify the country. The Greeks and other Mediterranean people have avoided crossing the mountains. People living near the coast have used the sea as their highway. Those who live inland are less fortunate. The Pyrenees, the Alps, and the Atlas Mountains have kept many inland people away from the sea. Modern methods of land and air travel have lessened the barrier effect of the mountains, but the problem still exists. Even with modern equipment it is difficult to build roads and railroads over mountains. This is one important reason why the Mediterranean Lands have been slow in developing industries.



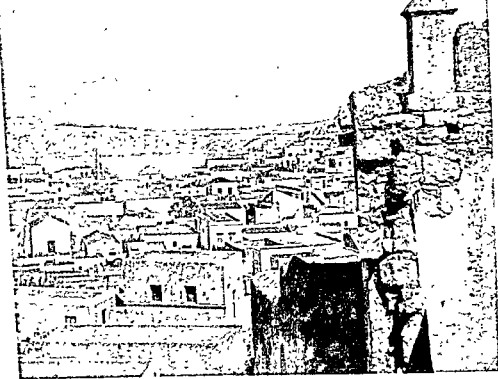
Reclaiming Swamp Land. Towns crowd close together on the narrow coastal plains of the Mediterranean. Mountains rise abruptly behind the towns. Since there is so little level land, the low-land area is very valuable. However, not all of it can be used for farming. Where the coastal plain is low-lying, swamps and marshes have formed. Mosquitoes breed freely in warm, damp places. Because the bite of these insects can cause a disease called malaria, few people have settled in the swampy areas in the past. Today people of the Mediterranean Lands have started projects to make use of this land. They are draining the swamps and marshes and planting forests. Gradually the face of the land is being changed. *The future looks brighter for the people of these areas.*

Towns on the Aegean Islands seem to rise straight up out of the sea.
(Holton from Photo Researchers)

THE SEA AS A HIGHWAY

Throughout history, the Mediterranean's calm, tideless waters and many islands have encouraged sea travel. For the early Greeks and Phoenicians, the sea was a highway for trade and settlement. The sea linked the Roman Empire when land travel was slow and difficult. Ships and men could travel more quickly from one country to another. Travelers carried with them ideas and learning.

We read in the New Testament that Christ told His apostles to "go and teach all nations." The apostles and disciples who had known and loved our Lord began to carry out this order soon



The crusaders occupied the island of Rhodes, in the Aegean Sea, in the year 1310 and held it for more than 200 years. The old wall and tower on the right of the picture were once at the heart of the town's defenses. (Henle from Photo Researchers)

after His death. When St. Peter established Rome as the capital of Christendom, a vast network of communications already linked Rome to distant corners of the Roman Empire. There were highways and seaways reaching out from Rome like the spokes of a wheel. Along these routes, the apostles and disciples of Jesus went to spread the teachings of their Master. St. Mark converted Egypt, St. Paul traveled long distances by sea to what is now called Turkey, to Greece, to the islands of Cyprus, Crete, Rhodes, Malta, and Sicily. We know that during the lifetime of St. Paul there were Christian communities in Cyrenaica, a province of Libya. It is possible that some of the apostles reached as far as the shores of the Black Sea in Asia Minor.

The importance of the Mediterranean has not lessened. Thousands of ships still sail past the Rock of Gibraltar into the Mediterranean Sea. Some are bound for Mediterranean ports. Others go southward through the Suez Canal to the Indian Ocean. Ships on their way to the Soviet Union steam through the Turkish straits to ports on the Black Sea.

Over the centuries, many nations have sought to control the Mediterranean. Use of Mediterranean sea routes was important in time of war. Great naval battles were fought in this sea during World War II. Today countries such as the United States and Britain still have military bases in this important waterway. Because of its position, the Mediterranean will always be of vital importance to the countries around it.

I. CHAPTER REVIEW

A. Terms to Know

Mediterranean climate	scrub
peninsula	humus
isotherms	alluvial fan
transition climate	alluvium
sirocco	alluvial plain
Mediterranean forest	relief
drought resistant	archipelago

B. Places to Locate

Mediterranean Sea	Mediterranean Basin
Iberian Peninsula	Meseta
Italian Peninsula	Aegean Sea
Balkan Peninsula	Aegean Archipelago
Adriatic Sea	Strait of Gibraltar
Maghreb	Masif Central

C. Review Questions

1. List three things the Mediterranean Lands have in common.
2. On what three continents do the Mediterranean Lands lie?
3. Describe the Mediterranean climate. Why is it called a "transition" climate?
4. Name the crops that are well adapted to the Mediterranean climate. Why is the cork oak a good example of plant adaptation?
5. Explain why the soil of alluvial fans and alluvial plains is very fertile. Name an Italian city that is located on an alluvial plain.
6. Describe the typical land relief of the Mediterranean Lands.

II. OBSERVATION ROOM

1. Using a globe, compare the areas of the Mediterranean countries. Name the countries in order of size, starting with the largest.
2. In this chapter, you studied the terms *archipelago*, *peninsula*, and *Mediterranean climate*. You saw how these terms applied in the Mediterranean region. Now study the map on page 18 to see if you can find archipelagos in other parts of the world. Locate some of the larger peninsulas on the map and tell on what continents they are

located. Study the map on page 40 to see how many places in the world have a Mediterranean climate.

3. Study the map on page 18 to see why the Mediterranean Sea could be called a *hub of sea commerce*.

III. THOUGHTFUL CORNER

1. Give examples that show clearly how plants and animals have adapted to their surroundings. The camel and the cactus could be used as examples.
2. Why are goats to blame for much of the soil erosion in Lebanon? See if you can find out why American cattlemen of the Old West did not want to have sheep grazing on their land.
3. Why do nations seek to control the Mediterranean Sea?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. Pretend you are going to spend next month visiting Rome. Make a list of the clothing you will need. Be sure to tell the kind of material each article is made of, such as a cotton shirt or a woolen dress.
2. Make a land relief model of the Mediterranean Lands. You can use flour and water, or perhaps you prefer styrofoam, clay, or putty. Color blue for water, green for lowlands, light to dark brown for hilly to mountainous land.
3. Many newspapers have a weather report that lists daily temperatures in the large cities of the world. See if your daily or Sunday newspaper gives temperatures in cities in the Mediterranean Lands. Compare these with the temperature in your own area on the same day.

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Many farmers in the mountainous Mediterranean Lands must farm their land with primitive tools. (*French Embassy Press & Information Division*)

CHAPTER

4

Life in the Mediterranean Lands

Compared to the countries of western Europe, which have many industries, the Mediterranean Lands are poor and undeveloped. Most of the land does not get enough rainfall for year-round farming. There are few big irrigation projects to bring water to the thirsty ground. People still use primitive methods of farming. Yet most of the people depend on farming for a livelihood.

There are, however, a few areas with modern irrigation systems. Along the northwestern coast of Africa, farming methods were improved by the French settlers. The Italians made similar improvements in Libya when they occupied it between World War I and World War II. During this period farming in Italy itself was being modernized. The Italians have irrigated and farmed vast areas of dry land in their own country and have drained swamp lands to make room for forests.

In Israel we find another example of progress. The Israelis have used the most modern methods in their farming. By irrigating and fertilizing, Israeli farmers have turned even the desert into productive farm land.

EUROPE AND THE MEDITERRANEAN WORLD
PERCENTAGE OF PEOPLE IN AGRICULTURE



Percentage of people in agriculture by countries



Scale of Miles
0 500 1000



Mediterranean farmers plant a crop between the rows of trees. This is called two-story agriculture and helps farmers get the most from their land. (Spanish National Tourist Office)

These and other Mediterranean regions have prospered because of the climate. Mediterranean farmers can supply European markets with fresh fruits and vegetables in winter. You may remember that our own southern farmers supply winter-grown fruit and vegetables to northern markets.

CROPS OF THE MEDITERRANEAN

Mediterranean farmers, like farmers all over the world, grow the crops best suited to their soil and climate. Most Mediterranean soils are poor. The olive trees so common in this region will grow on dry slopes that are difficult to irrigate. Barley can grow where soil is sandy or stony. In good soil, such as that of the alluvial fans, winter wheat can be grown without irrigation. Because of the long growing season, land that can be irrigated may often produce a second summer crop such as vegetables, tobacco, or cotton. Clover and alfalfa are often grown for animal feed.

Some Mediterranean farmers use a system of "two-story" agriculture. They grow vegetables or grains beneath taller plants such as fruit and nut trees. Most two-story agriculture is carried on in fields and orchards where water is available for irrigation.

Northern Mediterranean Crops. Some of the crops grown by farmers in the northern sections of Mediterranean Europe's three peninsulas are different from those grown farther south. This is because of the difference in climate. For example, northern Portugal is wetter and cooler than southern Portugal. Farmers in northern Portugal grow corn rather than wheat, and raise cattle. But even here the climate is warm enough so that grapes can be grown for the popular port wine. Northern Spain also is wetter and cooler than the south. Here, too, corn and rye grow better than wheat, and summer pastures support large herds of cattle.

In Italy the Po Valley in the north is the chief agricultural region. The Po Valley gets an abundant water supply from the Alps and from summer rains. Rice grown on flood plains of rivers is typical of this region. Corn and wheat are grown on drier ground. Fruits such as peaches and grapes thrive. Since cattle can graze on irrigated pasture lands, cheese is an important product. In cool northern Greece, farmers grow cotton, grain, and tobacco rather than the olives and grapes that are grown farther south.

Wheat: The Staple Crop of the Mediterranean. Mediterranean farmers have learned the best seasons and soils for their crops from centuries of experience. They grow more winter wheat than any other crop. Barley is grown where soils are poor, especially on the southern Meseta of Spain and in northwestern Africa.

EUROPE AND THE MEDITERRANEAN WORLD LAND USE AND VEGETATION





This farmer in Cyprus has no machinery to separate the chaff from the kernel, so he must winnow his harvest.
(Data from Photo Researchers)

The farmers harvest and thresh their wheat in May and June, when rain is unlikely. In most of the Mediterranean region, methods of farming and harvesting are primitive. Mechanized farming is almost unknown. Laborers cut the grain by hand and bind it into bundles. The bundles are carried by donkey to the ancient threshing floors. All the farmers in a district use the same outdoor threshing floor.

On the threshing floor, animals drag heavy wooden planks across the grain to loosen the kernels. The kernels and the husks or chaff sift down through the straw, which is then raked off. Then all the members of the farm family use pronged wooden tools to toss the grain into the air. The wind blows the light chaff to one side as the heavier kernels of grain drop to the ground. This process is called *winnowing*. In the mills the grain is cleaned again before being ground into flour.

Olives. Olives are grown all over the Mediterranean region. Plants with long roots survive summer droughts because they can seek water far underground. The olive tree grows well because, like the grapevine, it has a network of long roots. In all southern European countries olive oil is used for cooking instead of animal fats and other fats that we use. Olive oil is easily digested and is a high-energy food. The olive fruit, too, provides some of the basic items in the diet of the people. Mediterranean farmers can easily grow olives on their own patches of land. Every farmer tries to own at least enough olive trees to provide for the needs of his family.

Olive trees take 15 years to mature and produce fruit, but good olive trees will produce sound fruit for many years with very little attention. Some are said to be more than 100 years old. To the farmer an olive grove represents years of hard work and patient waiting. To lose it would be a very serious matter.

The cultivation of an olive grove is hard work. To start a new grove, shoots are cut from productive olive trees. The shoots are planted wide apart so that the roots have room to spread. For the first three years the shoots must be watered several times a year. After that the trees get enough water from the soil. Farmers plant grain crops beneath the trees to provide an income while they are waiting for an olive harvest.

Olives must be processed while fresh. If they are to be used for oil, they are picked and brought at once to the presses. The fruit is ground and the oil is drained off. The better grades of oil are sold for cooking and salad oil. The poorer grades are used for making soap.

Olives for table use are sent to the market. Green olives are a specialty of Spain, but black olives are also grown there as well

as in southern France, Italy, and Greece. Spain leads the world in olive production.

Other Crops. Most farmers in the Mediterranean Lands grow crops to feed their families and farm animals. You learned last year that we call this subsistence farming. Where the size of the farm permits, the farmer grows a few crops for sale. Some people in northern Italy raise silk worms, which produce silk for the Italian silk industry in the Po Valley. In Greece almost every farmer has a patch of tobacco that earns a dependable income. Some rice is grown on irrigated land along the southern coast of Spain.

The cork oak and the nut-bearing and citrus trees are an important source of income for Mediterranean farmers. The cork oak grows well in the western Mediterranean countries. It needs no irrigation. The cork bark is stripped from a tree about once every ten years. Cork is in demand all over the world to make linoleum, insulation materials, floats, bottle stoppers, and many other things. Nut trees such as filberts, chestnuts, and almonds are an important source of income.

Grapes are grown throughout the Mediterranean region. Most of the grapes grown in northern Portugal, on the southern coasts of Spain, in North Africa, in northern Sicily, and along the French and Italian coasts are made into wine. Some of the grapes are eaten fresh. In warm weather, grapes are an excellent thirst-quencher. Grapes are usually grown where irrigation water can be obtained in summer. Mediterranean Algeria is one of the greatest wine-producing regions of the world.

Citrus fruit trees thrive in the Mediterranean Lands. When the Italians occupied Libya in North Africa they planted miles of citrus groves, which are now yielding a big harvest. Citrus groves need a great deal of hand labor. The irrigated lands of Sicily, too, are devoted mainly to citrus groves, with lemons as a specialty. Sicilian lemon oil competes with Californian lemon oil on world markets.

LIVESTOCK IN THE MEDITERRANEAN

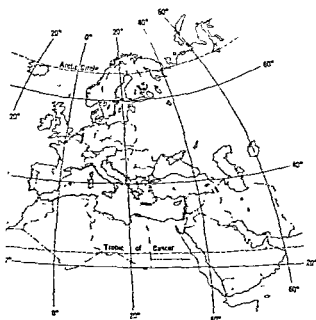
Livestock raising in the Mediterranean Lands has a special character. Goats roam freely where vegetation is sparse and where the land is too poor for farming. The better pastures are left for sheep and for the few cattle. Most kinds of cattle do not thrive in the warm Mediterranean climate.

Where the animals graze depends upon the type of soil and the seasonal changes in weather. In the moist, cool winters, pasture

A Sicilian boy has transplanted a citrus sapling and is now pruning it.
(Italian Information Center)



EUROPE AND THE MEDITERRANEAN WORLD MEDITERRANEAN CROPS



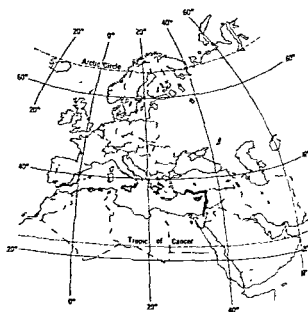
Olives



Grapes



Cotton
Tobacco



Citrus fruits

grass grows abundantly on the lowlands. When summer comes, the grasses and edible shrubs dry up in the hot sun. Then the shepherds drive their flocks up into the mountains. In the cool moist air the mountain pastures remain green through the summer. Sheep and goats are herded wherever such summer pastures are available. Rough wet areas in oak forests are used to graze pigs, which feed on the acorns.

A special variety of sheep, the merino, grazes on the steppe-like grasses of the Spanish-Meseta. Merinos have been famous for centuries because of their fine wool.

In the same way that camels are associated with deserts, goats are typical of the Mediterranean Lands. Goats cost little to feed. They find food where we might think there was no vegetation. Goat's milk is a vital source of nutrition for people too poor to buy other food. Cow's milk is scarce and expensive in these countries because the climate on the whole is too warm for cattle raising. On rare occasions, when the owner can spare a goat from his flock, goat meat provides a banquet. Goats also provide hair, called mohair, which is used to make warm rugs and garments.

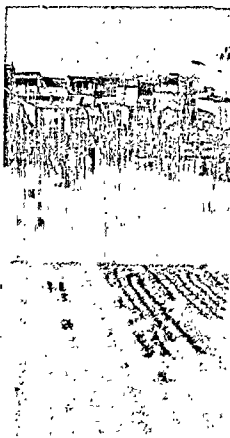
EROSION PROBLEMS

Goats are easy to raise, but they are hardly man's best friends. In fact, goats could be considered the worst enemy of the Mediterranean peoples. Through the centuries, grazing goats have stripped the hillsides of vegetation. In his search for food, a goat tears up grass and young trees by the roots so that they cannot grow again. Without plants to hold the soil, the land soon becomes eroded. Rain and wind remove the dry topsoil, and the gullied land soon becomes a barren waste.

Throughout the Mediterranean area, bare hills and barren fields show damage done by goats. Spain, Greece, and North Africa have large areas left desolate by goats. The bareness of the Greek islands in the Aegean Archipelago is due largely to overgrazing. The cedar forests of Morocco were ruined by goats. The Israelis are now trying hard to cover their barren hillsides with new tree seedlings. These hillsides were covered with trees before the goats stripped them.

In some Mediterranean countries, people have tried to control the damage caused by goats. Some years ago the government of the island of Cyprus ordered that goats be slaughtered and reforestation projects started. The results are now showing. Acre by acre, land is slowly being recovered. Much remains to be done to restore land for agriculture.

A windbreak is made by planting rows of trees to shelter the crops from the wind. (Greene from Photo Researchers)



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In contrast to the densely populated, fertile areas where men can earn a livelihood, there are large stretches of poor land where few men make their homes. Little food can be produced in these barren areas. The soil has become infertile from overgrazing and from neglect. Up to half the land in central and southern Spain is damaged by erosion. Where the hills have been stripped of vegetation or poorly farmed, the slopes have lost the topsoil or top layer of soil. Many streams wash away soil until the stream beds are choked up. The good, fertile land near the streams may then become water-logged and useless for farming. When the rains are heavy, the strong, fast-flowing streams spread stones and gravel over good land unless the farmers build stone barricades or walls to protect it.

In spite of erosion, some farmers cling to their property and continue to struggle for a livelihood by growing olives and grapes. These crops do not improve the situation. The plants are too widely spaced to hold the soil together, and both the topsoil and the soil underneath are easily washed away.

The farmers try many methods of correcting erosion. Contour planting and strip cropping are two ways of preventing loss of soil. Farmers all over the Mediterranean Lands use terracing on the hillsides to prevent soil erosion. Terraces are broad level steps bordered with little stone walls to keep the precious soil from washing down the hill. The width of each step varies with the steepness of the slope. The lower steps are usually irrigated and reserved for vegetables and cereal crops. Farther up the hill, first fruit trees and then grapevines are planted. The grazing fields are usually at the top of the slopes. Most of the terracing has to be done by hand labor, which takes time. The governments of the Mediterranean countries are trying to reforest barren slopes where erosion has not gone too far. But many farmers, though hard-working, remain poor because their land is unproductive.

Building terraces (left) is hard, slow work, but the results (right) are well worth the effort. (French Embassy Press & Information Division; Henle from Monkmeyer)





A LIVING FROM THE SEA

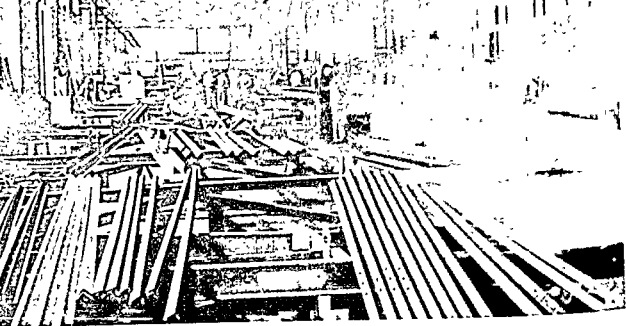
Tunisian fishermen sell most of their catch at local markets. (A.I.D.)

The sea is important to the Mediterranean people because they earn such a meager livelihood from the land. Greek sailors, Arab sponge divers, and Italian and Portuguese sardine fishermen all depend on the sea.

You might think that fishing would be an important industry in the Mediterranean Lands. But this is not the case. Fishing is one of the least important of the occupations in this region. Let us see why.

The Mediterranean Sea is constantly being warmed by the sun. The Strait of Gibraltar, the only outlet to the Atlantic, is too narrow to allow the cool waters of the Atlantic to mix with those of the Mediterranean. As a result, the Mediterranean Sea is much warmer than the Atlantic Ocean. Fish live by feeding on tiny plants and animals called plankton. Since plankton does not thrive in warm water, many varieties of fish cannot live in the Mediterranean. For this reason the Sea is not a good place for commercial fishing.

Fish catches in the Mediterranean are poor. But small fishing villages, almost unchanged through the centuries, lie all along the Mediterranean shores. The fishermen catch enough fish to supply the small needs of their own villages. The best fishing in the Mediterranean Lands is off the Atlantic coasts of Portugal and Morocco. Here fishermen catch young pilchards, which you may know as sardines. Many Portuguese trawlers also cross the Atlantic to fish on the Grand Bank of Newfoundland.



Steel bars are important building materials. Algerians are now producing some of their own steel. (French Embassy Press & Information Division)

Italian industry is growing at a very rapid pace and providing many new jobs. This girl is making television parts. (Italian Information Center)

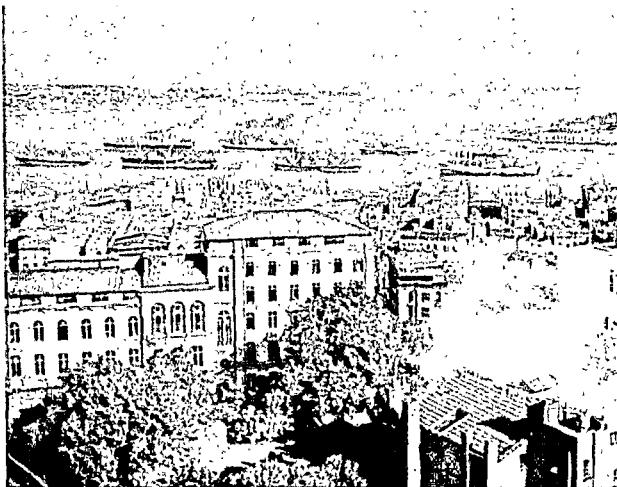


DEVELOPING INDUSTRY

In the nineteenth century, modern industry began to develop in the countries of northern and western Europe. During the present century, southern Europeans have started to establish industry. Italy has gone considerably further than the others. The Italians have built many large, modern factories, but these industries are still unable to fill the employment needs of Italy's large population. Large numbers of Italians have emigrated to other countries to find work. In the last few years, whole villages of Italians have been brought to West Germany to provide labor for the fast-growing industry there.

Resources. To make a success of its industry, a country needs both raw materials and a supply of power at reasonable cost. Coal is found in Turkey in good quantities, but the only deposits in Italy, Spain, and Portugal are small and of low grade. Northwest Africa does not have enough coal for its own needs. Greece has some soft lignite, but no coal suitable for industry. Until recently, petroleum deposits in the Mediterranean Lands were also thought to be very limited. The discovery of oil in Tunisia and Algeria has given some hope that fuel for industry may at last be available in this region.

Although the Mediterranean Lands are poor in mineral resources, the picture is not all dark. There are some deposits of mercury and tungsten. Phosphates, potash, and iron also exist in small quantities. Without coal these minerals are of little use in the countries where they are found. But as exports these minerals are a very important source of income to otherwise poor countries.

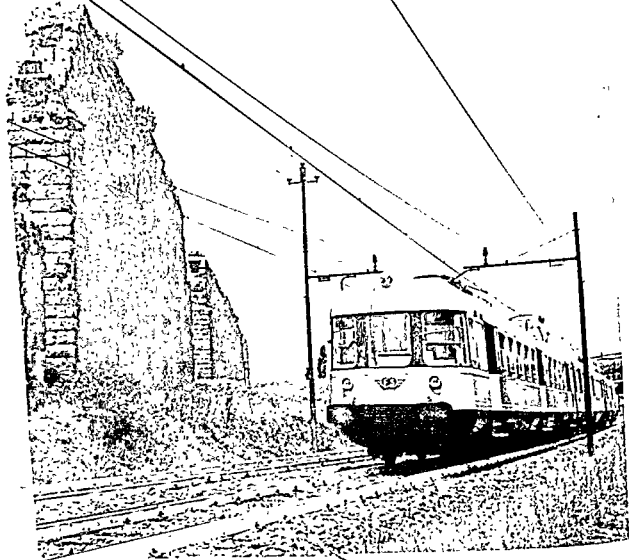


Italy has made good use of its hydroelectric sources. The Po Valley, for example, has become one of the great industrial centers of Europe. The industrial region in Mediterranean Europe next in importance to the Po Valley is northeastern Spain. Rivers and streams from the snow-capped Pyrenees provide hydroelectric power for the industrial cities of Spain as the Alps do for the Po Valley.

Transportation. There are three main reasons why industry has not developed more in the Mediterranean Lands. First, raw materials are scarce. Second, the home markets are small because most of the people are poor. Third, the people and their governments cannot afford to invest large sums of money in overland transportation.

Most of the Mediterranean Lands are mountainous or rugged. In many, the building of highways and railroads is too costly to be practical. It is often cheaper to send goods by sea. For this reason we find many busy ports. Barcelona, Marseille, Genoa, Naples, Piraeus, Izmir, Tel Aviv, Tunis, and Algiers are only a few of the busy harbors of the Mediterranean.

Istanbul, at the entrance to the Bosphorus, is one of the busiest Mediterranean ports. (Pratt from *Rapho-Guillumette*)



The Italians have the best railroad and road system in the Mediterranean Lands. This is hardly surprising when we recall that the Italian Peninsula was the center of the Roman Empire. At the height of their power the Romans built roads, bridges, and aqueducts, some of which are still in use today. Hydroelectricity, too, plays a part. The fast-flowing rivers from the Italian Alps help to power an electrified railroad system as well as industry.

While the French ruled northwest Africa, they wished to develop the resources of the region. They also wished to be able to move minerals and food products easily to the port cities for export to France. For these reasons, they made great efforts to improve the road and rail systems in the now independent countries of Tunisia, Algeria, and Morocco. The Mediterranean ports of these countries now have a fairly adequate transportation system.

CENTERS OF POPULATION

The cities of the Mediterranean Lands have long been centers of trade and political power. The great trade cities of Italy were powerful in the Middle Ages. The ports of Genoa and Venice controlled the overseas trade. Florence, Bologna, and Milan traded overland with the rest of Europe. After the discoveries of Columbus, trade routes were opened up to the New World. For a time this reduced the importance of Mediterranean seaports as trading centers. With the opening of the Suez Canal they began to regain their importance. The growth of industry in the twentieth century is restoring to these cities much of their earlier importance.

Ports with rich farming areas nearby dot the shores of the sea. Because they are capital cities, Lisbon, Madrid, Rome, Athens, Beirut, Tunis, and Algiers are all growing fast. Barcelona, Marseille, Genoa, Milan, Turin, and the smaller towns that adjoin them have well established industries. Workers from rural areas are finding jobs in new industrial cities on the eastern and southern shores of the Mediterranean.

Many Mediterranean towns and cities stand on the sites of old towns. Tunis is located where Carthage stood 800 years before Christ came on earth. Even small fishing villages have survived on the same site after hundreds of years. Although other locations may offer better living conditions, or better answers to the needs of modern industry, the village dwellers prefer to live where their forefathers lived.

PROBLEMS OF THE MEDITERRANEAN LANDS

As you know, the farmers of southern Europe produce some crops that command a good price in markets abroad. The Spaniards grow cork, olives, and oranges. The Portuguese are famous for wines and cork. The Italians grow orchard and garden produce, and the Greeks grow raisins and tobacco. These products have long been traded all over the world and have brought wealth to some large landowners. Yet most ordinary workers live in great poverty. Often they do not earn enough to feed themselves and their families properly. The Mediterranean countries of southern Europe do not produce enough grain to feed their people, so they must import large quantities of wheat.

The fast-growing population of the Mediterranean countries needs increased supplies of food. But the farming methods of these people are often still primitive. Food production cannot keep



In the rugged mountain country of Spain, few farmers have modern machinery. (Annan Photo Features)

pace with the increase in population. Problems like soil erosion have not yet been solved. The yield per acre of cropland is less than a third of that expected by farmers farther north in Europe.

The Mediterranean farmer has little money to buy fertilizers or tools. His yearly income is barely enough to provide for day-to-day needs. He cannot afford either the time away from his farm work or the money to teach himself or his children new farming skills. It is often difficult for him to save or to obtain loans of any money to invest in farm improvements.

Most of the land in the Mediterranean Lands was owned for centuries by a few wealthy people. They parceled it out to tenant farmers who gave them the greater part of the crops as rent. Landholding in this manner is still common, but the governments in most cases are trying to break up the big estates and distribute the land among the people who cultivate it. The new landholders struggle hard to become successful farmers. They are proud of their new role and determined to prove that they deserve this opportunity to become independent.



CHAPTER 5 Mediterranean Countries of Europe

In the next two chapters we are going to look at the Mediterranean Lands country by country. The Mediterranean Lands are not united in a single nation as are our own United States. They are divided into many countries, each with its own government and its own flag. Some of these countries, such as Greece, are among the oldest nations in the world. Others have only recently achieved independence.

COUNTRIES OF THE IBERIAN PENINSULA

(Above) The Pyrenees have few passes. They form a natural border between France and Spain. (French Government Tourist Office)

On the westernmost limit of Europe is the Iberian Peninsula. Four fifths of the peninsula is occupied by the republic of Spain. The other fifth contains the republic of Portugal. Portugal faces the Atlantic, while Spain has coasts on both the Atlantic Ocean and the Mediterranean. The Iberian Peninsula has a long shore line, but much of the interior is cut off from the sea by mountains. Only a few river valleys open up ways to the interior. The Pyrenees form a northern mountain barrier so that land travel to France is difficult.

Spain. One section of Spain differs greatly from another in climate and altitude. A narrow plain backed by mountains runs along the coast. The Mediterranean and southern Atlantic coasts have the typical Mediterranean climate. They have warm summers and mild sunny winters with some winter rain.

The central plateau of Spain is called the Meseta. The Meseta has greater variations in temperature than do the coastal regions. Much of the land is dry and steppe-like. The low mountain ranges and hills are marked by deep erosion.

Contrasting with the Meseta, the northwest of Spain bordering the Bay of Biscay is a land of constant mist and rain. This is because the high Cantabrian Mountains condense the moisture in the winds that blow from the sea. Farther east, the Spanish Pyrenees present a barren appearance. Rain-bearing winds drop their moisture on the French side of the mountains and leave the southern side in a rain-shadow.

SPAIN, PORTUGAL, AND SOUTHERN FRANCE: PHYSICAL-POLITICAL



Until the early nineteenth century, Spain was a rich country with large overseas possessions. In the sixteenth and seventeenth centuries wealth flowed into Spain from the Americas. Palaces were built and adorned with priceless treasures. The arts flourished. It was during this period that great painters like El Greco, Velasquez, and Murillo produced the masterpieces which fill famous museums such as the Prado of Madrid.

Since the loss of the Spanish colonies, the large landowners have controlled most of the wealth of the country. The land is poor, and extensive acreage is needed to produce crops in large quantities or to pasture big herds. Less than one third of the people own the land they work. Small farms are often divided into tiny parcels at some distance from each other. Farm workers use primitive farming methods on infertile, eroded, and water-hungry land. Nearly half the farm workers can find work only at planting or harvest time.

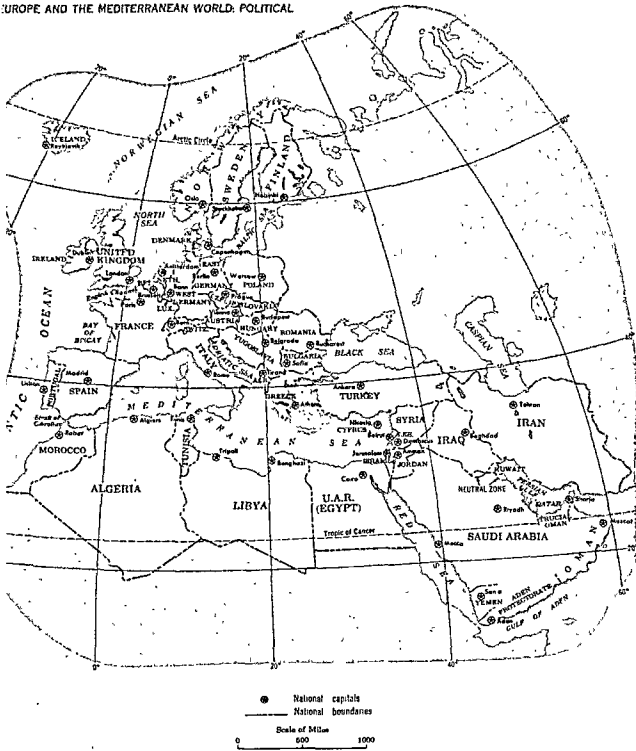
Spain exports wines, olive oil, citrus fruits, and early spring vegetables. Cork bark and hides are produced both for local industry and for export. Minerals sent abroad from Spanish mines include iron, copper, lead, zinc, and mercury. The Spaniards import some manufactured goods, food products, and raw materials.

Spain's busiest seaport is Barcelona, on the Mediterranean coast in the northeastern part of Spain. There are fine modern docks and good port facilities in Barcelona. It is the most important city in the only truly industrial part of the country.

Along the rest of the Mediterranean coast the population is scattered. The Costa Brava, the coastal strip running north from Barcelona, has many attractive resorts and beaches. These make the area a very popular vacation land for Spaniards and for visitors from abroad.

South from Barcelona along the coast, small plains and gentle slopes permit the growth of crops for export. Agricultural centers along the Mediterranean and farther inland include Valencia, noted for oranges and rice, Malaga, important for grapes, Seville, Granada, Cordoba, and many others. The valley of the Guadalquivir River, on which the cities of Cordoba and Seville are located, is the largest lowland of Spain. The Guadalquivir Valley is a very important farming center.

The Meseta tableland constitutes two thirds of the land surface of Spain. The soil in this area is one of the poorest in all Europe, and the land remains undeveloped. Because the Meseta has few streams for irrigation, farming is limited. In some areas, herds of sheep are constantly on the move in search of the grass or the few green plants that spring up after rain.





Toledo is in the southern part of the Meseta. Once the capital city of Spain, it is a treasure house of art and fine historic monuments. When a sword was part of the essential equipment of a soldier, swords for all the armies of Europe were made in Toledo. Today fine steel weapons and metal work of all kinds are still manufactured there.

In the southwest province of Huelva, near Palos, copper has been mined since the days of the Phoenicians. Spain also mines some iron ore in the north and ships it to England. But central Spain has practically no local raw materials, and it is difficult and costly to transport goods over the Meseta. The lack of power to run industries was another problem that hindered the development of Spanish industry in the past. Extensive hydroelectric projects are now under construction.

Although Madrid, the capital of Spain, is a railroad center, few industries have developed there. As in so many cities in this region, tourism is an important source of income in Madrid.

The island of Majorca, largest of the group of Balearic Islands, lies off the east coast of Spain about a hundred miles from Barcelona. Although Majorca's land is poor, with water in short supply, almonds, olives, and citrus fruits grow well in the mild climate. The sunny beaches of these islands attract large numbers of tourists.

The Spanish People. There are some very rich people in Spain, and many who are very poor. The government has been making some efforts to improve conditions for the poor, but the streets of the capital city of Madrid provide contrasts in living at every corner. Wide boulevards lined with new public buildings and the mansions of wealthy landowners and merchants are found in the heart of the city. Not far away are narrow streets and lanes with the crude shacks of the less prosperous workers. The wealth of the rich comes mostly from their large estates, where they may live for only a few weeks in the year. Many wealthy Spaniards also derive large incomes from money invested abroad, often in Latin American countries.

In spite of these differences in wealth, the Spaniards have many things in common. Most Spanish men and women are devoted to family life. Children have a deep respect for their parents, and families take their recreation together. In every Spanish city the wide streets and squares are crowded during the evening hours. People gather to meet their friends, chat, walk, or sip drinks at sidewalk cafes.

Spaniards, especially those who live in the villages, are gay, friendly people who live a simple open-air life and love music, song, and family festivals. Nearly all Spaniards are Catholics.

(Left) Standing on stilts, this French shepherd has a good view of his flock. (French Government Tourist Office)

MEDITERRANEAN EUROPE: LAND USE



Most of them go in family groups to Sunday Mass, whether it be to the little village churches or to the large, ornate cathedrals of the cities.

Church feasts are days of general festivity. In particular, the Spaniards love to celebrate several days of carnival before Lent begins. At this time the old national costumes, formerly worn every day, reappear, and the people dance in the streets. The Holy Week church ceremonies, with colorful parades and processions, are a special feature of Spanish life. Hundreds of tourists visit Spain during the week before Easter to witness or take part in these processions. Spaniards regard the processions as a public declaration of their Faith.

Portugal. In order to meet the friendly Portuguese people, let us cross the boundary from Spain and go west along the Douro River. Find the Douro River on your map. It empties into the sea at Oporto. As we leave behind us the tableland, with its stunted vegetation, there is a gradual increase in the fertility of the land. The vineyards look much more attractive, and the farm land and the farmers' homes look much more prosperous than those on the Spanish Meseta.

Portugal, which is about the size of the state of Indiana, can be roughly divided into three regions: north, central, and south. The northern part is much like northwestern Spain. The winter climate is cold and wet, but the summer is still warm enough for growing grapes. Most of the people grow or sell or transport food. The export of port wine has made the city of Oporto a busy seaport.



Little girls skip rope in a Madrid park.
(Page from Photo Researchers)



"Read all about it!" sounds different
in Portuguese, but the newsboy's job
is much the same in every country.
(Weiss from Rapho-Gullumette)

In central Portugal, the valley of the Tagus River widens out into a highly productive plain. All the Mediterranean crops thrive, and most of the food for the nation is grown here.

Lisbon, the picturesque capital city, sprawls across the hills on the right bank of the Tagus River. Lisbon has an international airport and is both an industrial center and a busy port. Lisbon is one of the most attractive cities in Europe, and its fine hotels cater to the needs of a busy tourist trade.

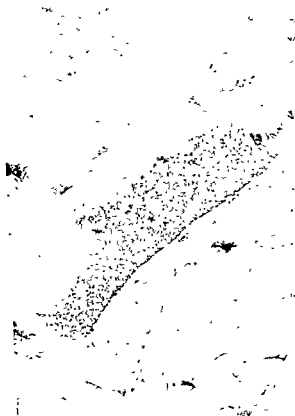
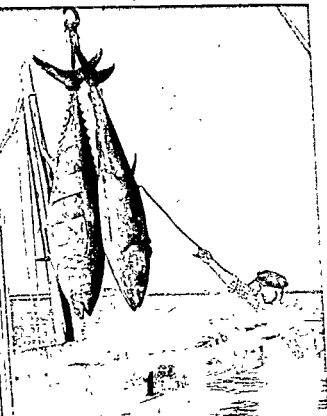
Fatima, a few miles from Lisbon, was the site of apparitions of Our Blessed Mother to three peasant children in 1918. A very large and beautiful basilica has now been built at Fatima, which before the apparitions was a desolate hillside village.

Southern Portugal has hot summers, mild winters, rugged mountainous country, and few rivers. This region has fewer people per square mile than the rest of Portugal. There are no large industries to attract workers. Here we find extensive wheat farms. As a result, most of the people are farm workers employed on the big estates.

Portugal has been a republic since 1910. Unlike the United States, where most adults are allowed to vote, the Portuguese people are not encouraged to take an active part in the

(Left) Any fisherman would love to boast of this catch of tuna. Portugal borders on the Atlantic Ocean, where fish are more plentiful than in the Mediterranean. (Photo Sni-Yan)

(Right) Cork from Portugal is exported to all parts of the world. (Photo Sni-Yan)



government of their country. The Prime Minister of Portugal, Antonio Salazar, began his rule as dictator in 1932. Political parties *that oppose the government are not permitted.*

For many years, education was neglected, and as a result, many adults cannot read or write. However, elementary education has now been much improved. A high school education is generally available only to the wealthy or to the fortunate young people who gain entrance to the few high schools in the larger towns and cities. The standard of living of the people is not high compared with ours, but conditions are steadily improving.

The Portuguese are making efforts to develop agriculture and fishing, but this small nation must still import some of the food essential for its people. Portuguese exports of cork were at one time half the world's supply. This trade, which brought in a reliable income for years, has been diminishing. Now there is competition from synthetic, or artificial cork. Portugal is second only to the United States in the export of resinous products such as tar, pitch, and turpentine, which are obtained from the coastal pine forests. These products are still sometimes called naval stores, a name given to them when they were much used in the building of wooden ships.

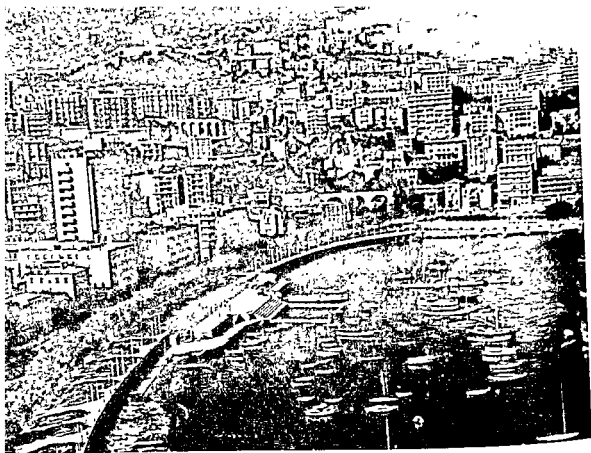
Minerals exist in great variety in Portugal, but development of them has been slow. Several rivers have been harnessed for hydro-electricity, and industry is beginning to develop. Tungsten now leads the minerals being worked. Tungsten is used as an alloy to make steel harder. An alloy is a metal mixed with another metal to give some special quality.

Portugal's manufactured products are mainly processed foods. Canned fish is one of the country's most important exports. Imported cotton supports a small textile industry to supply local needs. Portuguese handcraft in gold, glass, and wood carving is much sought by tourists.

Like the Spaniards, the Portuguese love festivals. Every town and village has its fairs and fiestas which begin or end with a church service.

SOUTHERN FRANCE

We leave Portugal and travel east to the part of France which lies between the Iberian and Italian peninsulas. This section of France is known as the Midi. The strip of land along the southern coast of France from the city of Toulon to the Italian border is called the French Riviera. This picturesque stretch of seacoast is one of the most popular vacation lands in Europe.



Monaco's pleasant climate, beautiful scenery, and modern hotels attract many tourists. (Henle from Monkmeier)

Many people of the Midi live in small villages that seem to climb the mountain slopes. In the cities of Marseille, Grasse, Cannes, Nice, Toulon, Aix-en-Provence, and Avignon, the population grows more dense. People have settled where industry, commerce, and the tourist trade provide employment. In the Midi the people farm, trade, fish, and produce perfumes, wine, and olive oil.

Along the fertile coast, and in the valleys of the Garonne and Rhone rivers, French farmers have planted mile after mile of grapevines. This is one of the most important grape-growing areas of Europe. The grape harvest gives employment to the men, women, and children of the whole area. People from the towns and villages join the fishermen, the shopkeepers, and the rural workers to help gather the grapes and take them to the presses for making wine.

In this region, bright-flowering shrubs are splashes of color against dark pines that reach toward the blue sky. Everywhere there are olive groves, vineyards, and flowers. The cities of Grasse and Cannes are the center of the famous and very prosperous French perfume industry. French soaps and perfumes used the world over are made from violets, roses, lilies, and orange blossoms grown in the miles of gardens and orchards.

Marseille, the second largest city in France, is the largest port in Mediterranean Europe. It stands at the entrance to the Rhone Valley. The Rhone, like many rivers flowing into the Mediterranean, brings down large quantities of silt. The tideless sea does little to prevent the formation of the wide delta at the river mouth. The waters of the delta are too shallow for shipping. For this reason the port of Marseille was built 27 miles east of the delta. Ships from every nation in the world dock at Marseille, carrying passengers and freight in and out of Mediterranean Europe.

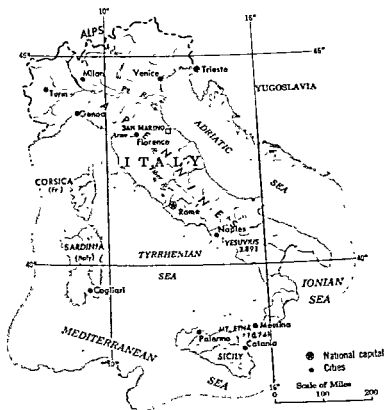
East from Marseille to the Italian border, the hills are covered with woods or pasturage for sheep. The indented coast has many good harbors, among which the naval port of Toulon is important.

Farther east along the coast we come to the principality of Monaco, with its beautiful natural harbor and pretty town rising above the Mediterranean waters. Monaco is one of the smallest independent states in Europe and is governed by a prince and a cabinet of ministers. Following the Riviera coast eastward from Monaco, you reach the Italian Peninsula.

People of every nation enjoy music and dancing. The tarantella is a favorite dance of Italy. (Annan Photo Features)



ITALY: PHYSICAL-POLITICAL



THE ITALIAN PENINSULA

When you look at the map, the boot-shaped peninsula of Italy seems to be playing football with the large island of Sicily. The peninsula includes the large republic of Italy, tiny San Marino and, within Rome, the independent state of Vatican City. Most of the peninsula and the islands of Sicily and Sardinia make up the republic of Italy. The Italian Peninsula is about twice the size of the peninsula of Florida. Yet in this area are crowded over 50 million people. This is more than one fourth the number of people in the entire United States.

The Italian government has made efforts to take land from the wealthy landowners and give it to the people. More and better schools and other ways of improving the life of the people are being introduced. Progress, if slow, is steady. In the past 30 years, swamps have been drained and additional hydroelectric power has been developed. The draining of the vast mosquito-ridden marshes near Rome was an outstanding success. These improvements have benefited the people in the north greatly.

But the people who have remained in the south are still desperately poor. The life of the poor tenant farmer of southern Italy is

very different from that of the better-educated, wealthier farmer in the prosperous Po Valley. The population of southern Italy has been dwindling steadily for years because many people move to the northern cities or emigrate to find a better way of life.

The climate of southern Italy is hot in summer and pleasantly cool in winter. There is little rain. Northern Italy does not have a true Mediterranean climate. The winters are colder than in the south, and there is more rain in summer. Because summer rain helps grass to grow, we find dairy farms, which are rare in the drier Mediterranean climate. North of the Po Valley, many men cut timber in the Alpine forests.

The fast-flowing rivers are harnessed to produce hydroelectric power. The Italian people have used this resource well. Much of the peninsula has an excellent supply of electricity. This is especially true of the Po Valley. Where the rivers cannot produce all the power needed in this industrial region, coal imported from Germany is used as fuel in thermal-electric power plants. The Italians have also attempted to harness the heat from volcanoes to make electricity. However, the use of this source cannot be compared with the harnessing of the rivers.

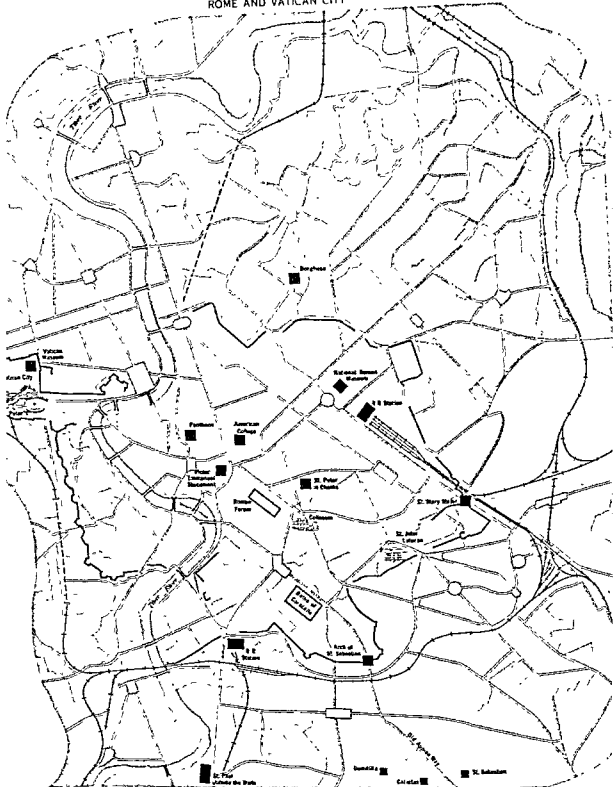
Many Italians are farm workers, market gardeners, or fruit or flower growers. But in the cities, expanding industries provide work for many. Italy has produced famous engineers, scientists, doctors, and architects. The arts, too, have benefited from the genius of such Italians as the great sculptor Michelangelo or the famous singer Enrico Caruso. In all the cities, beautiful buildings, bridges, fine roads, museums of art treasures, concert and opera houses remind you of Italy's great cultural heritage.

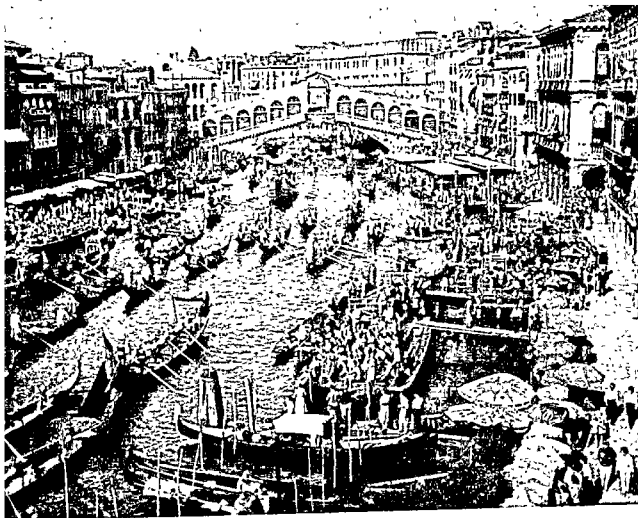


In the older towns of southern Italy, the townspeople still live in overcrowded conditions. (United Nations)

Angry motorists are found all over the world. Rome's traffic problems are similar to those in many large American cities. (Note from Monk-meyer)







It is easy to forget that Sicily, at the toe of Italy, is an island. The sea passage between the island and the mainland is only a few miles wide. This passageway is dominated by the large and busy Sicilian port of Messina. On the northwestern coast of Sicily is the port of Palermo. This port handles Sicily's considerable export trade of citrus fruits and lemon oil. The snow-capped volcano of Mount Etna rises near the port of Messina.

Another volcano, Mount Vesuvius, stands guard over the city of Naples on the mainland. Naples is located on the west coast about 130 miles south of Rome. The port of Naples handles a great deal of freight and much passenger and tourist traffic destined for Rome. Of the other Italian ports, Genoa is the busiest. Look at the map on page 80 to see if you can tell why Genoa is so busy. Coal, iron ore, oil, cotton, and foodstuffs arriving at Genoa are sent through a narrow pass in the Apennine Mountains to the

In Venice, canals and gondolas take the place of roads and taxicabs.
(Annan Photo Features)

great industrial cities of northern Italy. Out from Genoa go exports of olive oil, wine, silk, woolen, and cotton textiles.

Many prosperous cities crowd the industrial area of Italy for which Genoa is the outlet. Factories produce textiles of all types, and steel products such as automobiles, sewing machines, typewriters, and motor scooters. Chemical fertilizers, now being produced in great quantity, are a boon to Italian agriculture. Most goods manufactured in Italy are exported to other countries. The money earned by exports is used to buy goods and raw materials which Italy does not have.

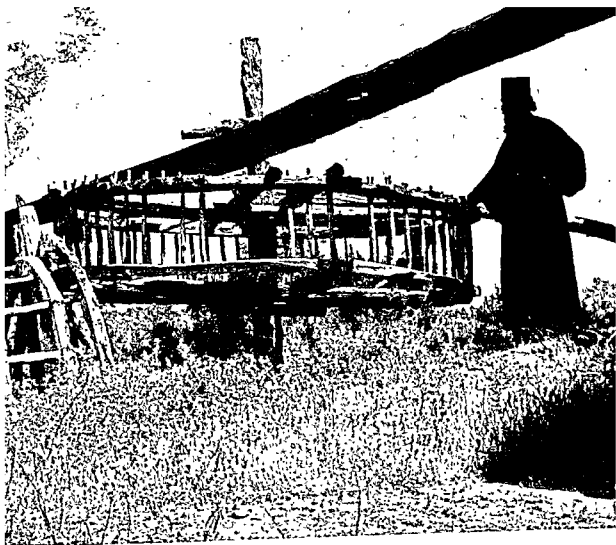
Venice, at the head of the Adriatic Sea, is built on islands in a shallow lake. Canals, wide and narrow, are the "streets" of Venice. Gondolas and motor boats take the place of autos and buses. The gondola is a long flat-bottomed boat with high curved ends, steered by a man called a gondolier. The Grand Canal through the center of Venice is deep enough to allow small ocean vessels to reach the business quarter of the city.

Dominating central Italy is its capital, Rome. Once the capital of the Roman Empire, Rome today is the most influential city of southern Europe. The older quarters of the city date back nearly 3,000 years. But modern Rome is a bustling metropolis, a center of commerce, fashion, and intellectual life.

For Catholics, the most important thing about Rome is that since the first century it has been the capital of the Catholic world. Rome is the only place in the world where you will find a state within a city. This state is Vatican City. Vatican City is less than 110 acres in area and is a completely independent state. It lies within the city boundaries of Rome and is the official residence of the Pope. Among the beautiful old buildings are the great basilica of St. Peter's, which is the largest church in the world, and the famous Sistine Chapel with its magnificent paintings by Michelangelo on walls and ceilings. Many museums, art galleries, and libraries house priceless art and literary treasures.

Because Vatican City is an independent state, like other states it has to have a central administration. Here you will find many busy government offices which correspond to the offices and ministries in Washington, D.C., London, or Paris. Many priests, and sometimes even bishops and cardinals, work in the offices in Vatican City planning and directing the affairs of the Catholic Church throughout the world.

Since Rome is the world center of the Catholic Church, many universities and colleges have been built there to train students from every corner of the earth. Hundreds of religious orders have seminaries or houses of study in Rome. Many priests from the United States study at the North American College in Rome.



A Greek Orthodox monk on Cyprus
inspects an ancient water wheel.
(Davis from Photo Researchers)

THE BALKAN PENINSULA AND CYPRUS

Follow the coast from the eastern border of Italy around the Adriatic Sea. First you come to Yugoslavia. Geographers do not regard Yugoslavia as a Mediterranean Land. In spite of its location, it is more like the central Balkan countries such as Bulgaria, Romania, and Hungary. South of Yugoslavia, Albania also has a long coast on the Adriatic Sea. Albania, with Greece, forms the tip of the Balkan Peninsula.

Albania. Albania is small. Steep mountains and narrow valleys cover most of the land. The rivers are few and fast-flowing. There is good fertile soil on the low-lying coastal plains, but undrained

marshes are also found there. Only about one tenth of the country is suitable for farming. The farm land lies along the coast, in the river basins, and in the mountain valleys. People have crowded into the small fertile areas and left the mountain forests and pastures to the sheep and goat herders. Even today the undrained marshes along the coast are mosquito-ridden and few people live there. The cost of draining the marshes would be enormous, and Albania is poor. In a thinly populated country the people find it easier to make their homes in other areas rather than undertake costly drainage projects.

Farming methods in Albania are very primitive. Only a few decades ago the first simple iron plows were brought into Albania. Where the soil and climate make it possible, the farmers grow wheat and corn on the plains, and olives, grapes, and citrus fruits on the hillsides. They also grow tobacco for export and cotton for use with wool in the making of homespun clothing.

Life is hard for the people in this rugged land. Many farms are isolated from each other, and loyalty to the family is more important than loyalty to the nation. Religious differences have also divided the people. Today about 70 per cent of the Albanians are Muslims, an effect of almost 500 years of Turkish rule. The remainder of the population is Christian. Schools are few and the standards of education low.

At present the country is ruled by a government that has close ties with Communist China. Efforts are being made to win all the people, Muslim and Christian alike, away from a belief in God. In addition, the people are not free to communicate with the outside world. The natural resources of the country are not being developed, although in the capital city of Tirana some minor industry has been started. But on the whole the country remains backward. The life of an Albanian is a simple one, poor by our standards, and hard. Unfortunately, there seems to be little prospect of improvement in the immediate future.

Greece. Now look at the map on page 88. Follow the coast of the Adriatic Sea south from Albania. You will come to Greece, which covers the whole of the southern end of the Balkan Peninsula.

No point in Greece is more than 90 miles from the seacoast. Look at the map on page 88 to see how the Gulf of Corinth and the Corinth Canal cut right across the country. Ships can go directly from the Ionian Sea to the Aegean Sea. The land south of the Corinth Canal is called the Peloponnesian Peninsula.

Between the mainland of Greece and the Turkish coast are the islands of the Aegean. These islands belong to Greece and make up one fifth of its total area. The islands and the western coast of what we now call Turkey were settled by Greeks in ancient times. When



the Turks took possession of the lands along the Aegean coast, the Greeks kept the Aegean Islands.

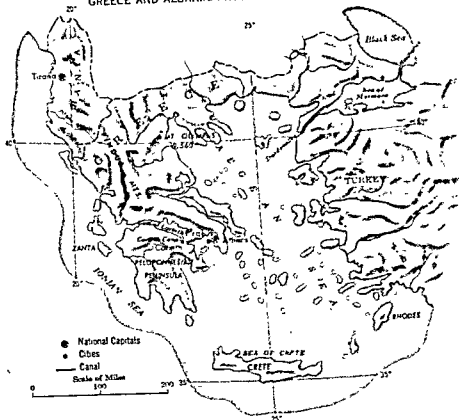
The Aegean coast is irregular and rugged, and mountain barriers break up the mainland. These barriers and the absence of fertile soil have forced Greek farmers to work hard for the necessities of life. Less than one third of the land can be cultivated. The rest is rocky pasture with small patches of cultivation.

Around the coast, especially on the plains, Greece enjoys a Mediterranean climate. In winter the temperature seldom drops below 40° F. to 50° F. The summers are warm or hot. The average summer temperature of Athens is 78° F. Inland, in the mountains, the winters are long and bitterly cold, but the summers are warm, dry, and extremely pleasant. As in all countries with a Mediterranean climate, there is little rain. The rain that does fall comes in the winter months.

A traveller through the countryside of Greece sees tray after tray of black seedless grapes lying in the sun to dry. You may have seen dried grapes, or raisins, in your grocery store. Currants are small seedless raisins named for the city of Corinth because they are grown in the region around that city. Grapes are also grown for wine.

The well-watered lowlands of northern Greece contrast with the bleak mountains in the background. (Talamis from Shostal)

GREECE AND ALBANIA. PHYSICAL-POLITICAL



Other Greek farm products are similar to the crops we find in other Mediterranean lands. One of the characteristic features of the landscape is the drought-resisting olive. Farmers grow tobacco and wheat, and in the south, almond and citrus trees thrive. Cotton acreage is increasing. Currants, other raisins, and wine were once the major exports of the country. Today tobacco is the most important export.

The Greeks are very friendly people. If you travel in Greece, a farmer will probably invite you to share a meal at his home. He will offer you the foods produced on his farm, which his family has probably worked for generations. His wife sweetens the dishes with honey instead of sugar. For a main course, you may eat lamb cooked with olive oil and stuffed olives, or grape leaves rolled and filled with richly spiced meats. You can have a glass of goat's milk if you care for its strong flavor. For dessert, you may eat one of many delicious dishes made with honey, or some refreshing fruit.

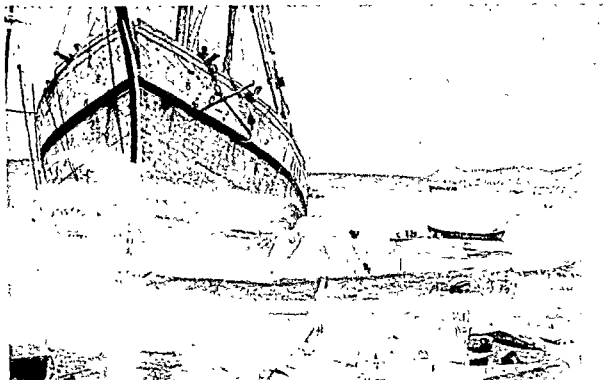
If your visit comes soon after a shower of rain, the farmer's children will bring you a bunch of the pretty wild flowers that carpet the sunny hillsides. There are certain to be some crimson poppies in the bunch, for poppies grow easily here.

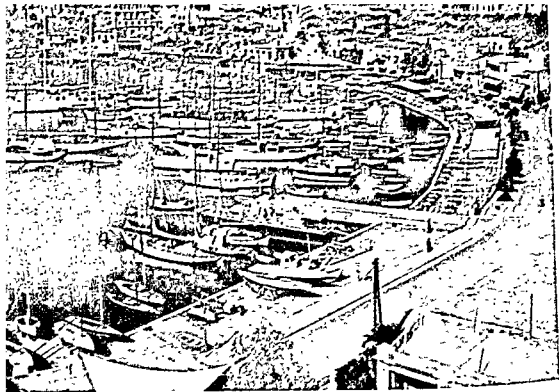
The seas around the coasts of Greece are among the few good fishing areas of the Mediterranean Sea. Into the many small harbors and fishing villages, fishermen bring large catches. Sponge fishing was once an important industry. This trade has diminished since the invention of plastic sponges.

Modern Greece is developing fast, for its people are vigorous and industrious. The Greeks of today love the sea as their forebears have loved it for centuries. The long coastline and the scattered islands which are part of Greece have made communication by sea important. You may still find a few *caiques*, or wooden sailing vessels, here and there engaged in coastal trading, but Greece has a large modern fleet of merchant vessels.

Greek owners control about 10 per cent of the world's merchant ships. Many of these ships do not carry trade into Greek harbors. Instead the ships are hired as sea carriers all over the world, and this service has been and still is an important source of income for Greece. Greeks make good sailors. If you visit a large ship at anchor in any American port, it is almost certain that you will find some Greeks among the crew.

Greek fishing boats are being built and repaired in a shipyard at Piraeus.
(United Nations)





dented coast line gives Greece fine natural harbors. Piraeus is largest port in Greece. (Constantinople from Shostal)

Athens, the capital of Greece and a busy metropolis, is five miles from the sea, in a hollow between the mountains. The city has many places of historic and artistic interest. Flying into the international airport at Athens one gets the impression of a landscape of great beauty. The newer city, constantly growing, is spreading out from the old city lying at the foot of the Acropolis, the flat-topped hill that overlooks Athens.

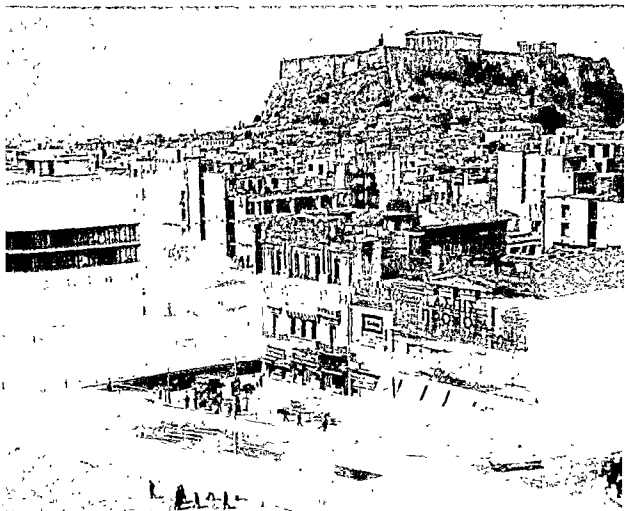
If you approach Athens from the sea, you pass many white sandy beaches and lively resorts. Presently you find yourself docking at the city of Piraeus. This is the capital's outlet on the Mediterranean, and it is a busy port. Piraeus is near the entrance to the Corinth Canal. Ships can berth there instead of making the long journey around the Peloponnesian Peninsula. Though not quite as old as Athens, Piraeus, too, dates back a number of centuries.

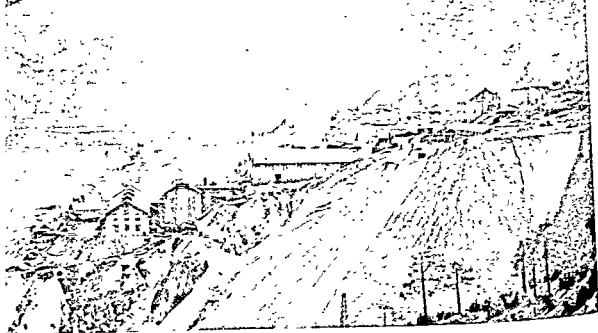
The Greek islands which are scattered over the Aegean Sea, an arm of the Mediterranean Sea between Greece and Turkey, form one of the most attractive archipelagoes in the world. You have learned that most of these islands are the peaks of a chain of mountains that stretch underwater between Turkey and Greece. The islands are steep and rugged but there are sandy beaches, vineyards, and olive groves. Towns and villages nestle on sheer cliffs and steep hillsides. Fishing boats sail out from tiny harbors to fish in the calm waters.

Crete is by far the largest of the Greek islands. Rhodes, near the Turkish coast, is another important island. The Aegean Islands are being visited in increasing numbers by tourists aboard passenger ships. There are, however, long intervals between the visits of freight ships which carry supplies to the islanders, so the people are mainly dependent on the produce of the islands.

You have learned about the greatness of ancient Greece in your history class. In this section you have studied the geography of Greece and the way of life in modern Greece. The struggle for existence of the average Greek today is very different from life in ancient Greece. Greece is no longer powerful among world nations. But the Greek retains great pride in his country. Greece lacks raw materials and has poor, barren soil and little industry. But the streets of any Greek city or town, pulsing with life, reveal that as a nation Greece keeps its dignity, its independence and its individuality.

The ruins of the Parthenon on the Acropolis rise up behind the busy downtown section of Athens. (Forbert from Monkmeier)





The asbestos mines of Cyprus spoil the beauty of the landscape but give employment to many people. (Philip Gendreau, N.Y.)

Cyprus. Eastward from the Greek island of Crete lies the island country of Cyprus. Ruled until recently by the British, Cyprus gained its independence in 1960. Because of the important position of Cyprus near the Suez Canal, Britain has insisted on keeping some military bases on the island.

Although it lies closer to Turkey than to Greece, 80 per cent of the people of Cyprus are of Greek descent. Most of the rest are Turkish. Cyprus was settled by Greeks and Phoenicians about 3,500 years ago. Since then it has been ruled by many nations, including Rome and Turkey. During the two world wars, the British used the island as a military base. Through all these occupations the Cypriots, as the people of Cyprus are called, kept their national identity and their Greek culture. Most Greek Cypriots belong to the Greek Orthodox Church. There have been Christians on Cyprus since the time of the apostles. Most of the Turkish Cypriots are Muslims. Archbishop Makarios, the first president of Cyprus, is also the spiritual leader of the Greek Cypriots. Under the new constitution, the president of Cyprus must be Greek and the vice-president must be Turkish.

As in all Mediterranean countries, most of the people of Cyprus are farmers. The farmers grow typical Mediterranean crops such as wheat, barley, citrus fruits, cotton, olives, and grapes. The island is the world's third largest producer of lemons.

In addition, Cyprus has some mineral wealth. Copper was first discovered in Cyprus, and the island still exports a great deal of copper. In fact, the island was named after this metal, the Roman word for copper being *cuprum*. Asbestos is also mined and is an important export.

WORKSHOP

I. CHAPTER REVIEW

A. Terms to Know

tableland	currents
naval stores	caciques
alloy	metropolis
gondola	emigrate

B. Places to Locate

Bay of Biscay	Peloponnesian Peninsula
Riviera	Rhodes
Gundalquivir River	Crete
Balearic Islands	Cyprus
Oporto	Midi
Fatima	Rhone River
Yugoslavia	Monaco
Albania	San Marino
Tirana	Vatican City

C. Review Questions

1. Explain why Spain is a land of contrasts. Describe the different areas.
2. Give as many reasons as you can for Portugal's increasing commerce and industry.
3. Why is the Midi an important area of France?
4. How has the location of Marseille helped the people to prosper in commerce and transportation?
5. List some ways in which the Italian people have improved their way of life since World War II. What are some problems that the Italians still face?
6. What serious problems do the Albanians have? What are some causes of these problems? Can you suggest any solutions?
7. Why is farming difficult in Greece? How have the Greek people improved their farming and their industry in the past twenty years?

II. OBSERVATION ROOM

1. From your study of a globe determine the lines of latitude that mark the northernmost and southernmost boundaries of the Mediterranean countries.
2. Compare the map on page 55 with a physical map of the same area. Explain the relation between the physical nature of the area (mountains, hills, plains, valleys, rivers, etc.) and the use that is made of the land.

3. Study the map on page 42 to see why northern Italy is able to benefit greatly from hydroelectric power. What physical differences can you see between northern and southern Italy? How has this affected industry in southern Italy?

III. THOUGHTFUL CORNER

1. Aside from motives of justice and charity, why should the United States give financial aid to such nations as Greece?
2. Vatican City has been called the "news center of the world." Why would you expect this to be true?
3. Why are there few industries in Madrid, even though it is the capital and the railroad center of Spain?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. Prepare a display of clothes and foods of the countries studied in this chapter.
2. Pretend you are a delegate to the United Nations from a nation that is requesting aid. Prepare a report to explain the problems your country faces and show how the requested aid would help solve these problems.
3. Choose a group to represent a family from a poor village in southern Italy. The family has decided to move to West Germany where there is more industry and employment. Act out all that is involved in preparing for and making this journey and in solving the problem of resettling in the new location.

B. Readings

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- Sawyer, Ruth. *Picture Tales from Spain*. Philadelphia: J. B. Lippincott Co., 1936.
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Mediterranean Countries of Asia and Africa

The Mediterranean Lands of Asia and Africa have one thing in common. All of them lie partly within the dry steppe and desert region that stretches from the Sahara into Iran and Turkey.

Find the African countries of Morocco, Algeria, and Tunisia on your vegetation map on page 55. Only the northern fringe of these countries, which is called the Maghreb, has a Mediterranean climate. South of this fringe stretch the empty wastes of the Sahara.

Now trace the Mediterranean coast of Asia from Israel through Lebanon and across to the lowlands of Turkey. The coastal areas of these countries are truly Mediterranean, but inland the dry steppe or desert takes over.

In this chapter we shall concentrate on the Mediterranean areas of these lands. Most of the people live in these areas, where they can depend on rain to water their crops. The people of these countries share many problems with people in the Mediterranean countries of Europe. They, too, wrest a living from poor, eroded soil. They, too, are slowly building roads and developing industries. In this development they are hampered by the hilly land, the lack of resources, and the shortage of trained labor.

MEDITERRANEAN COUNTRIES OF ASIA

Turkey. Find Turkey on your map on page 96. Turkey is cut in two parts by a small but important chain of waterways between the Black Sea and the Mediterranean. A strait, called the Dardanelles, joins the Aegean Sea with the Sea of Marmara. From there the Bosphorus leads to the Black Sea. Soviet ships from the Black Sea ports must pass through the Sea of Marmara on their way to the Mediterranean Sea and the Atlantic Ocean. For this reason, Turkey's control of these waterways is very important.

The part of Turkey that lies in Europe is smaller than the state of New Hampshire. A low range of mountains cuts Turkey off from Bulgaria to the north. The rest of the land between the Aegean and Black seas is rolling plains. The coast, however, is rugged and rocky. The only river of any importance in European Turkey is the Maritsa, which runs along the boundary between Greece and Turkey.

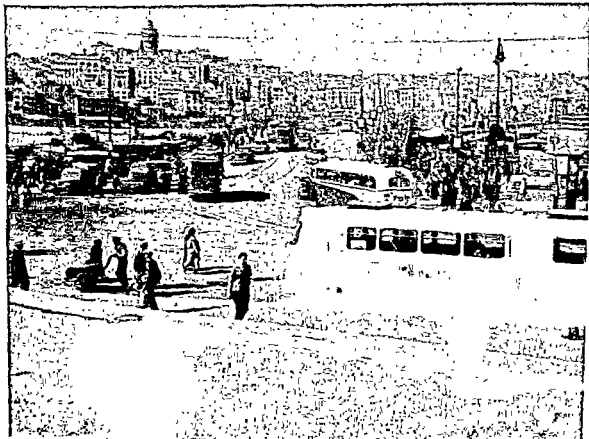
Asian Turkey is more than thirty times as large as the European part of the country. A rugged tableland called the Anatolian Plateau covers most of the country. Broad coastal plains border the plateau to the north, west, and south. The coastal areas are Mediterranean in climate. They are warm in summer and mild and rainy in winter.

The Anatolian Plateau has a steppe climate that is drier than that of the coastal lowlands. On the Anatolian Plateau the winters are very cold and dry, and the summers are cool. The river beds on the plateau are dry most of the year. They are filled with running waters in the spring.

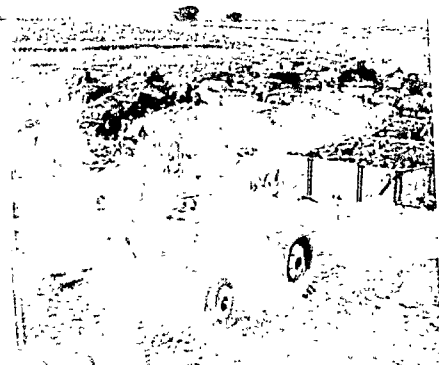
The Turkish people have adopted modern ideas much more quickly than other people of southwest Asia. The Turks owe a great deal to their leader, Kemal Ataturk, who came to power in 1923. At this time Turkey, which had been ruled by a sultan, became a republic.

Kemal Ataturk made great efforts to educate the people and modernize their lives. He separated the powers of church and state so that Islam was no longer the official religion. Muslim laws, such as the law requiring women to wear veils or men to wear a cap or turban, were repealed. The Turkish language was

The Galata Bridge is one of the busiest spots in Istanbul. This bridge across the Golden Horn leads into the business center of the city. (Tatch from Shostal)



THE TURKISH STRAITS



The United States sent Turkey some American tractors soon after World War II. But many Turkish farmers are still without farm machinery. (Designed from Rapho-Quillmette)

simplified and written in the alphabet we use. Both children and adults were obliged to learn to read and write. If you collect postage stamps, you may have one that shows Ataturk standing before a blackboard in the market place of a town giving a lesson in writing. The Turkish president toured his country teaching the people in this way.

Living conditions in the towns and cities have continued to improve since Ataturk's death in 1938. But Turkey is still an agricultural country. Eighty per cent of the population grows crops to meet the local demand for food. Farming methods are primitive. Except in the south, most of the farms consist of about 15 to 20 acres, and crop production is low. This means that the farmer can obtain only a small return for his work.

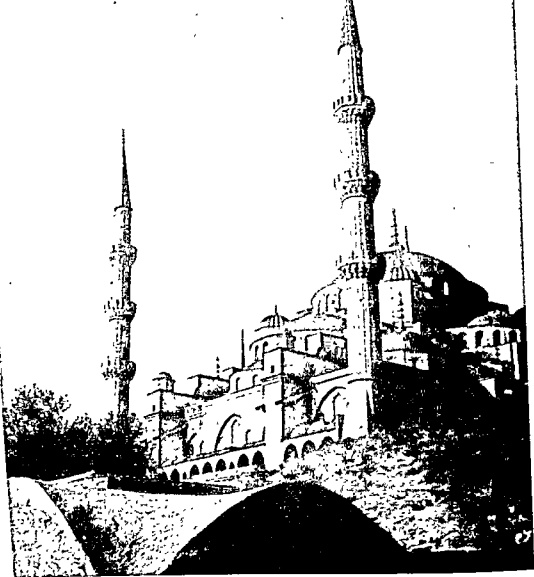
Farms on the Adana Plain near the Syrian border are larger. Here the farmers grow cotton, cereals, and fruits. The increasing use of machinery and fertilizer is making this one of the best farming areas in the country.

Conditions on the coastal plains are typical of the Mediterranean Lands. On these plains, farmers grow most of the crops which Turkey exports. Among them are grapes, olives, cotton, tobacco, figs, and filbert nuts. Raisins, rather than wine, are produced from Turkish grapes. The Turks raise Angora goats in large numbers for their coats of mohair. They export large quantities of the mohair to other countries, where it is used for fine textiles and upholstery.

In spite of a lack of trained workers, the Turks are trying hard to develop industry. For example, a steel mill is now in operation at Karabuk. Find Karabuk on your map. There are other steel mills, in addition, as well as cement, building material, and chemical plants. Kayseri has the largest textile factory in south-west Asia. Factories have been built to prepare processed foods, tobacco products, and leather goods.

Turkey has more mineral resources than any of her neighbors. In addition to coal and iron, there are deposits of chrome, salt, copper, bauxite, manganese, zinc, lead, silver, and molybdenum. Not all the mineral deposits are being worked. One reason is the lack of modern machinery and good roads. Another reason is that the Turkish government has not encouraged the people to develop the country's natural resources. All minerals are the property of the state.

The capital of Turkey is Ankara, but the largest city is Istanbul. Istanbul, once called Constantinople, is on the Bosphorus between the Sea of Marmara and the Black Sea. For many years the capital of Turkey, Istanbul is still the most important trade center in the country. Istanbul is a city of great beauty and sharp contrasts.



Saint Sophia in Istanbul, built in the sixth century as a Christian church, was later used as a mosque, and today is a museum. (KLM Photo)

Many slender towers rise into the clear blue skies. Some of these are the spires of Christian churches, but most of them are the minarets of mosques. A mosque is the church of Islam where the Muslims worship God, whom they call Allah.

Istanbul was originally a Greek trading post. Today it is a great international city straddling the Bosphorus. Yet around the corner one can step back into a world of long ago. The old city is located on the west side of the bay known as the Golden Horn, which is an inlet of the Bosphorus. The growing new city is on the east shore of the Golden Horn. The Golden Horn is one of the world's greatest natural harbors. It has helped to make Istanbul a center of commerce. The old city is the center of a network of railroads that spreads all over Europe.

Lebanon. South of Turkey lies Syria, a desert land which we will study in Chapter 9. Fringing Syria on the coast is tiny Lebanon. Lebanon is just over 4,000 square miles in area, or a little smaller than the state of Connecticut.

The western parts of the country are fortunate in having a good supply of water. Springs feed streams that flow to the coast down the western slopes of the Lebanon Mountains. The rainfall on these slopes is from 40 to 50 inches per year.

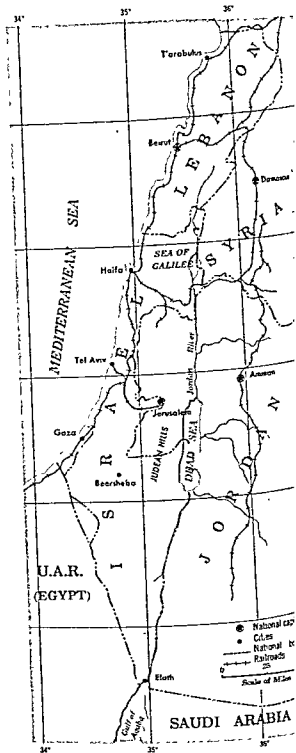
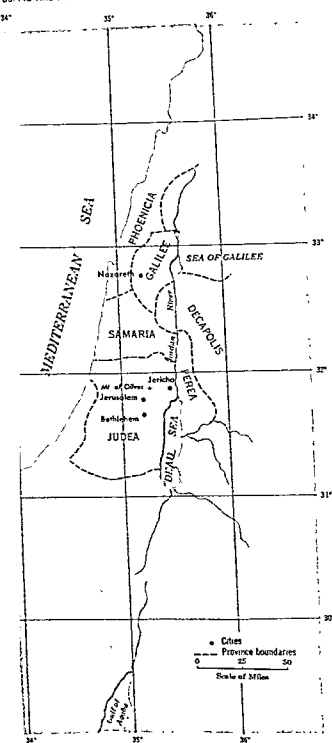
Lebanese farmers follow the Mediterranean custom of terracing the western mountain slopes. In this way they extend the amount of cropland and pasture land. The farmers grow fruits, cereals, and vegetables, and raise livestock. But the food production cannot meet the needs of the population, and large quantities of wheat must be imported.

The eastern slopes of the Lebanon Mountains have less rainfall than the western slopes. The valleys between the mountain ranges are fertile where irrigated, but much of the land that might be farmed is desert or marsh land. If the marshes were drained and the desert were irrigated, Lebanese farmers could produce more food. The need for food imports could be reduced.

The Lebanese people who do not work the land are sailors and traders, like their ancestors the Phoenicians. Their trade is highly organized and brings good revenue to Lebanon. Many Lebanese people buy and sell goods that are neither produced nor used in their own country. When men trade in this way they are called "middlemen." They buy goods from one foreign land and sell to another. Lebanese middlemen carry on their trade through agents all over the world. This trade and a flourishing tourist trade bring much money into the country. These ways of increasing the national income are necessary to the economy of Lebanon because the cost of its imports is much greater than the value of its exports.

The melting snow from the Lebanon Mountains provides a good water supply in the summer months. (Van De Poll from Monkmeyer)





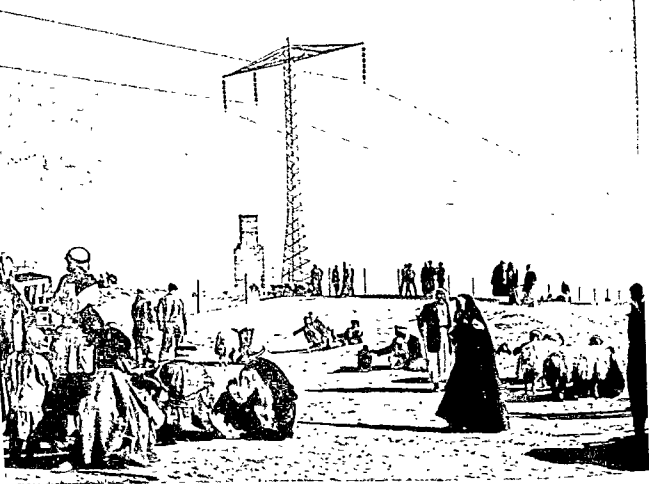
Lebanon is the most important tourist center in the Middle East. There is good winter skiing on the snow-covered mountains. Visitors from the hot desert lands are attracted by the cool mountain resorts and beaches.



Tourists from many nations come to ski on the slopes of the Lebanon Mountains. (Arab Information Center)

Beirut, Lebanon's capital, is a thriving city and port, with a busy international airport. Beirut has long been a center for education and commerce. Tourists and scholars from all over the world visit places of historic interest in and near Beirut.

Although Beirut was an ancient Arab city, some of its twisting, narrow streets were demolished 50 years ago by a Turkish ruler. Today a modern city has risen in their place. Old and new meet and mix in Beirut. The people have not lost their old-world charm, but they enjoy the modern conveniences of life. They are proud of their past and hopeful for their future as individuals and as a nation.



Bedouins gather in the Negev desert to sell their livestock. The power lines in the background carry electricity to a region only recently developed. (Henle from Monkmeier)

Israel. Israel is a tiny country only 8,000 square miles in area. Trace its irregular border lines on the map on page 100. Israel's northern plains are well-watered, hot in summer, and mild in winter like most Mediterranean Lands. In the southern highlands, called the Negev, over half the land is desert.

The republic of Israel was proclaimed in 1948 by Jews who were living in Palestine. Bitter battles followed between Israel and the Arab states, which opposed the establishment of the Jewish state. Although an armistice was signed in 1949, boundaries with Egypt, Jordan, and Syria are still disputed. The Israelis desperately need water to make their dry land yield crops. There are disputes about the water rights of rivers that Israel shares with neighboring Arab states.

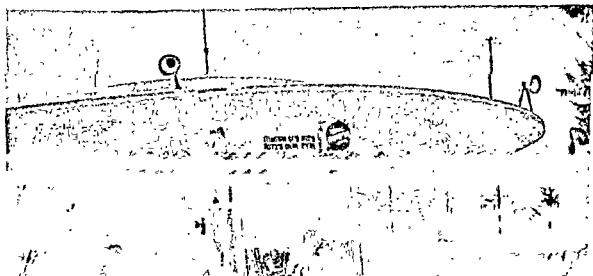
When the state of Israel was set up, many Palestinian Arabs left their homes and became refugees. These Arab refugees are still being cared for by the United Nations. Almost 20 years later thousands of them still live in overcrowded camps in the nearby Arab countries. The Arabs who remained in Israel settled around Nazareth. Many of them are Christians.

The heritage of the people of Israel is varied. Jews came to settle in Israel from 60 different countries. The immigrants spoke different languages and had customs and ways of thinking almost as varied as their languages. The differences in customs and language created some difficult problems, especially in the beginning. But the settlers worked hard to make Israel a productive country, and their efforts have been successful. They are not yet self-sufficient as a nation.

Less than one third of Israel's people are farmers. To make the best use of their labor, many Israeli farmers have joined each other in cooperative farms called *kibbutzim*. Kibbutz farmers own their farms as a group and share their labor and the profits they receive from the farm. Cooperative farming has been a big success in Israel, especially in arid areas that would be difficult for individual farmers to irrigate.

The industrious Israelis have made amazing progress. In just four years, between 1956 and 1960, they increased their food production by 60 per cent. The Israelis have greatly improved the thin, stony soil by scientific methods of farming, by fertilizing, and by soil conservation. They make good use of their land by rotating their crops and raising livestock and poultry. Much of the desert land has been irrigated.

At a bus station in an Israeli town
one sees people from many lands.
(Tatch from Shostal)





Poultry raising in Israel is a profitable industry. (Israel Office of Information)

Christ walked along this narrow street of Jerusalem, called the Via Dolorosa or Way of the Cross, on His way to Calvary.



Most of the crops grown are for home consumption. But it will probably be many years before Israel produces all the food that its people need. Crops grown under the new scientific methods are still costly to produce.

As in other Mediterranean Lands, Israel's most productive farm lands are the small, fertile, coastal and river plains. The marshy land on the border of Syria would be valuable if drained. But political trouble with Syria prevents the drainage work from proceeding. The reforestation of the stony Judean hills in the center of the country has been one of the more successful conservation projects in a Mediterranean land.

The triangular plain of the Negev lies between Israel's borders with Jordan and Egypt, immediately south of the Dead Sea. The Negev contains over half the good land in Israel. However, it is semiarid and can be farmed only if water is brought to it. Around Beersheba, one of the largest towns in the Negev, land has been made fertile by piping in water. Much more remains to be done. The Israelis are experimenting with various methods of irrigating these dry lands. One of the methods is the distillation of water by solar energy.

In keeping with the traditions of their Mediterranean neighbors, the Israelis are developing a merchant fleet to ship goods abroad. The Israelis concentrate on making goods that are small in bulk so that they can be easily shipped. An example is the diamond-cutting industry. Diamond cutting requires highly skilled labor, which is available in Israel, and the product is small in volume and high in value. Markets are a problem for the Israelis. Neighboring Arab countries could provide good markets for certain goods produced in Israel, but they refuse to trade. Egypt has closed the Suez Canal to Israeli ships.

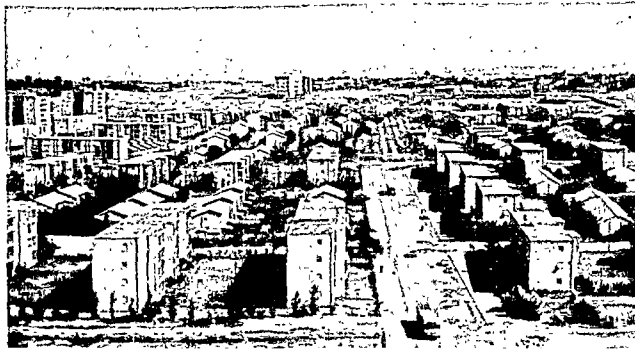
The largest city in Israel is Tel Aviv. Founded in 1908, Tel Aviv was named the first capital of Israel. It is a well-planned, modern city near centuries-old Jaffa. Tel Aviv has a harbor and is famous for its sandy beaches. Tel Aviv leads the nation in industry, in which the Israelis are making great progress. Oil tankers from Venezuela try to keep the large refinery at Tel Aviv supplied with crude oil, since oil from the Arab lands is not shipped to Israel.

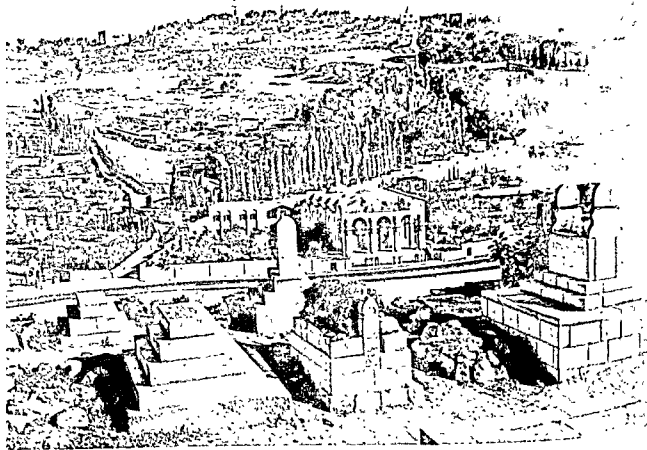
Haifa, at the foot of Mount Carmel, is the second largest city and Israel's best port. Nazareth, in Galilee, is a largely Christian Arab city. Many people work in a new textile factory in Nazareth.

In 1949 the capital was moved from Tel Aviv to Jerusalem. A glance at the map on page 100 will show you that Jerusalem is a divided city. When Palestine was divided between Israel and Jordan, Jordan claimed the old city which has been an Arab city for centuries. It is a holy city for Christians, Jews, and Muslims. The crowded, narrow streets of the old city have probably changed less over the years than the streets of any other city in the world.

Jerusalem's new city, which is in Israel, was built when Jews started to return to their ancient homeland after World War I. The new city's modern buildings cover more ground than those of the old city. A neutral zone several blocks wide runs between the Jordanian and Israeli sections of Jerusalem. Neither Jordan nor Israel may claim this "no man's land." Border guards patrol the boundary and carefully examine the papers of everyone who wishes to cross the border. Even the many tourists have difficulty in passing the border check posts.

Tel Aviv has many modern housing projects. (Henle from Monkmeier)





From the Mount of Olives, shown in the background, Christ ascended into heaven. In the center foreground the Basilica of All the Nations stands on the site where Christ suffered His Agony. (A. Williams from Shostal)

Learning Geography from the Bible. If you read the Bible thoughtfully you can learn a great deal about the geography of lands that border the eastern Mediterranean. Conditions similar to those you learn about today existed in the lands of the Bible when the Old Testament and the New Testament were being written. To the Chosen People of God, their land flowed with milk and honey compared to the desert where they had wandered for forty years. In the sunny Mediterranean climate of Judea and Galilee, the people grew the wheat and the grapes that Christ mentioned so often in His parables. But, just as today, much of the land was arid. In the Old Testament we read of the camels being watered in the desert and of flocks moving to summer pastures.

You read of barley loaves distributed to the people after Christ's miracle of the loaves and fishes. Barley loaves were the food of the poor, for barley was easier to grow than wheat. The olive tree and olive oil, the grape and grapevine, the fig tree are all mentioned in the New Testament. The fishermen of today could well be the descendants of the fishermen who two thousand years ago cast their nets on the Sea of Galilee.

MEDITERRANEAN COUNTRIES OF NORTH AFRICA

We have studied Turkey, straddled between two continents; Israel, the land where Jesus lived 1,900 years ago; and Lebanon, where the cedars of Lebanon once flourished. Now we shall study several Mediterranean Lands in northwest Africa. Here the people live and work much as they do in the lands of the eastern Mediterranean, tilling the soil and holding back the desert.

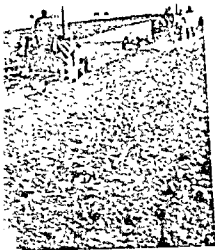
The lands along the coast of northwest Africa have been known by many names. They have been called the Atlas Lands because of their nearness to the Atlas Mountains. They have also been known as the Barbary States because of the original Berber inhabitants. Because they were under French control from 1830 on, Tunisia, Algeria, and most of Morocco were known as French North Africa. Tunisia and Morocco became independent in 1956, and Algeria in 1962. There are still many European residents in all three countries. Many of these people are wealthy and educated, in contrast to the generally poorer Arabs and Berbers.

Along the North African coast are the low plains and hills known as the Tell. *Tell* is an Arabic word meaning "hill." The Tell, the seaward slopes of the mountains, and the plateaus and broad valleys between the mountains receive the Mediterranean winter rain. Here agriculture and even some good forests thrive in one of the most pleasant parts of Africa.

Small villages with stone houses and terraced slopes remind the visitor of southern Europe. There is plenty of water for irrigation. Fruit and nut orchards, vineyards, and olive groves are irrigated. The farmers can grow winter wheat and barley without irrigation because they get rain in winter.

Morocco. Morocco is a land of variety and great beauty. Its southern and eastern borders touch the Sahara. The Atlas Mountains curve from the Atlantic coast toward the Algerian border with several towering ranges separated by plateaus and valleys. Minerals and fertile soil are Morocco's most valuable resources. Most of the people live along the Atlantic and Mediterranean coasts where the fertile soil and favorable climate are best for farming.

For a country that has not long enjoyed independence, Morocco is tackling its problems with energy. Several years ago the government set up "Operation Tree" to conserve the land and retain the drifting sands. In one year, over two million trees were planted in 5,000 acres by thousands of young volunteers. The workers planted olive, almond, walnut, and eucalyptus trees. The government continues to plant large numbers of trees yearly.



"Operation Plow" in Morocco
(Morocco Mission to the U.N.)



"Operation Tree" in Morocco
(Embassy of Morocco)

Many years of effort will be needed to restore the badly eroded soil, which was misused and neglected for centuries.

"Operation Plow" is Morocco's attempt to mechanize its farms. Most farms have less than 10 acres of land. The farmers use primitive plows drawn by camels, donkeys, or oxen. Under "Operation Plow," many small farms join to make large farms under a cooperative system. The cooperative farms are very much like the cooperative farms in Israel. Farmers who work together under this system can acquire machines, fertilizers, and good seeds. They can also make use of soil conservation methods that would be too expensive for one farmer alone.

Irrigation is essential in this dry land. When the French ruled Morocco, they started many projects to provide irrigation water and electricity. The French are still helping the Moroccans to develop their resources. Cork is among the important exports. Long-staple cotton is grown for high-quality fabrics.

Morocco used to be divided between France and Spain. Good transportation systems were built by the French, but the Spaniards did little to develop their part of the country. One of the goals of the Moroccan government today is to build better roads between the northern and southern territories.

To improve the diet of the people, the Moroccan government has encouraged the fishing industry. The Moroccan fishing industry benefits from the chilly waters of the Atlantic. Where the supply exceeds local demands, the fish are packed and exported.



A market in a North African city
(Weiss from Rapho-Guillumette)

The sardine catch is very large. Sardines are said to bring in more revenue than the old coastal pirates ever dreamed of.

Morocco is governed by a king, with a few leading citizens as advisers. Few of Morocco's men and women have had enough education to fit them for leadership. On the whole, educational standards of the country are low. For this reason it will probably take many years for Morocco to become a strong nation or to play any important role in world affairs.

Tangier is a large city at the southwestern end of the Strait of Gibraltar. It stands between the mountains and the sea, overlooking a good harbor. For many years seven nations had joint control of this busy port city. Now Tangier belongs to Morocco.

Morocco's largest city is Casablanca, an Atlantic port with an agreeable Mediterranean climate. Casablanca is an old city, but it owes its present prosperity more to location than to age. All through World War I and World War II, supplies vital for Africa and Europe were shipped to and from distant lands through Casablanca. Casablanca's harbor has been improved and modernized, and it is one of the busiest Atlantic ports.

Rabat, the capital of Morocco, is also on the Atlantic coast. Fez, 200 miles northeast of Casablanca, is a sacred city of the Muslims. Fez contains some of the finest mosques and Moorish buildings in northwest Africa. Marraketh, 150 miles south of Casablanca in the Atlas foothills, is a great walled city, famous for centuries as a typical African city of great wealth.



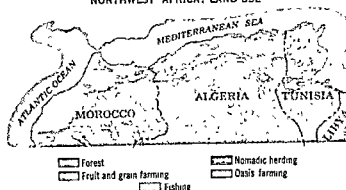
Ores from Algerian iron mines are used to make high-quality steel in European steel mills. (French Embassy Press & Information Division)

Algeria. Algeria was the last country on the Mediterranean to gain independence. Until 1962 it was a province of France. When the French settled in Algeria in the middle of the nineteenth century, they drove the Berbers into the mountains. The deep resentment of the Berbers was one reason for their bitter struggle for independence.

Algeria has 600 miles of coast on the Mediterranean. A coastal strip, varying from 50 to 100 miles wide, forms the Tell, of which you read on page 107. The Tell is only a very small section of the country. But here, in a pleasant Mediterranean climate, live nearly 85 per cent of the people. Before Algeria gained independence, about one in nine of the inhabitants was of French origin. The rest were Arabs and Berbers. Yet the French settlers owned and farmed two thirds of the arable land. Muslim Arabs owned small orchards of olives, oranges, and figs. The French farms were efficient and modern, but the most primitive methods were used by the Arab subsistence farmers.

Since Algeria has become independent, the Algerians are no longer ruled from Paris. But for some years they will continue to need some help from France. France has invested millions of dollars in developing both land and industry in Algeria. She wants to keep Algeria as a friend and is still the best customer for Algeria's products. The new Algerian government has tried to persuade the French settlers to remain. Most have already left

NORTHWEST AFRICA: LAND USE



because they fear that their interests will not be protected under the new government.

Algeria's greatest single export is wine. The French settlers saw that conditions in Algeria were ideal for grape growing. They planted large areas with grapevines, employed Algerian labor to make the wine, and shipped it to France.

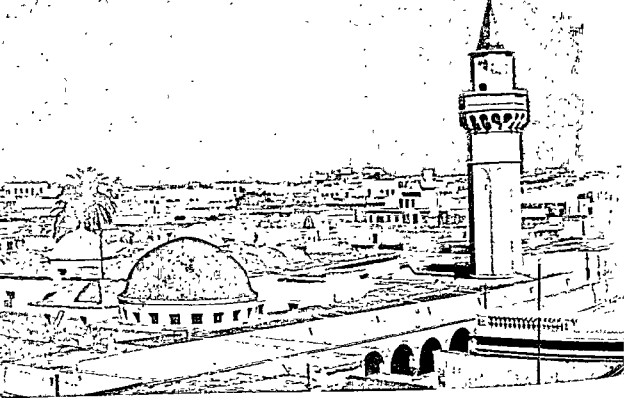
Cork is another valuable export. France also buys from Algeria large quantities of citrus fruits, olive oil, wheat, and vegetables. Exports of dates from the Saharan oases are increasing in volume.

Great petroleum reserves have been discovered in the Sahara near the borders of Algeria and Tunisia. Petroleum has brought hopes of national wealth to the two countries. Deposits of copper, zinc, iron, salt, phosphate, antimony, lead, and coal are also known to exist. Most of the iron mined in Algeria goes to feed steel furnaces in industrial Europe.

Before Algeria can make the fullest use of her mineral resources, she must build more roads. Many of the minerals are found in the desert, where they are difficult to reach. Homes for the mine workers must also be built in the desert areas.

Algiers is the capital city of Algeria. For many years this city had a majority of French residents with a European and Christian heritage. To people entering the harbor from the open Mediterranean, Algiers presents a beautiful, dazzling-white picture. An ancient fort stands guard on the crest of a hill. Around the fort are narrow streets bordered by whitewashed houses. Down the hillside the city spreads out to the more modern business districts where new factories are springing up.

As in so many Mediterranean ports, the harbor of Algiers is open to the sea. Long piers called breakwaters have been built to shelter the port. Outgoing ships are laden with food products bound for Europe. Incoming ships carry manufactured articles into Algeria.



The needle-like tower is one of many minarets in the city of Tunis. Five times each day, a crier stands on the platform and calls the people to worship in the mosque below. (Henle from Monkmeyer)

Tunisia. Tunisia is the easternmost of the Atlas lands. It is almost halfway between Gibraltar and the entrance to the Suez Canal. Only 90 miles of sea separates it from the Italian island of Sicily. For this reason, Tunisia has been involved in struggles with European nations since the days of the Greeks and Romans.

Tunisia gained its independence from France in 1956. After a period as a protectorate of the United Nations, it became a republic. As elsewhere in northwestern Africa, the French helped to develop Tunisia's resources. Since gaining independence, the Tunisians have worked hard to balance the nation's budget and establish a stable government. Their greatest need is to provide jobs for the many unemployed workers. Many of those who do have jobs earn very little money. Some Tunisian families must spend nine tenths of their income for food.

Tunisia extends southward into the Sahara. The plateau north of the desert has a steppe climate, which permits dry farming and the raising of livestock. The central coastal region has olive groves that are world-famous. The northern coastal region is the most densely populated part of the country and has the best farm lands. The climate is similar to that of southern Spain, Portugal, or Italy.

In the northwestern section, fine cork-oak forests border grain and livestock farms. East of Tunis, extensive vineyards, citrus orchards, vegetable gardens, and wheat fields show the great fertility of the soil.

Olives, wheat, and barley are Tunisia's most valuable crops. Tunisia is said to have at least 27 million olive trees, and to be the largest olive-oil producer in the world. Olive presses are a familiar sight all over Tunisia.

Tunisia is the most advanced of the three Tell countries. However, she still has many of the problems usually found in the Mediterranean Lands. Farming methods are primitive. More water is needed for irrigation. Soil erosion must be checked and scientific farming methods introduced.

Phosphate mined in Tunisia accounts for six per cent of the world total. Phosphate is used mainly in manufacturing of fertilizer for export. The Tunisian phosphate industry was developed by the French. Most of the fertilizer is shipped to ports along the Mediterranean Sea and is used to fertilize European farms. In spite of the need to improve the land, the Tunisian farmer uses very little fertilizer.

Some of the world's best iron ore is mined in northern Tunisia. The ore is shipped to Europe to supply the great steel mills of France, Germany, and Italy. Small amounts of lead and zinc ore are taken from scattered deposits. A natural-gas deposit near Tunis supplies the city with gas.



(Top) Much of Tunisia's rich grain crop is harvested by hand. (A.I.D.)

(Bottom) Irrigation can turn unproductive desert into excellent farm land. (Arab Information Center)





Tunis, the capital of Tunisia, has a mixed population of Arabs, Berbers, and Europeans. (M. Williams from Shostal)



A fruit farmer in the Maghreb dries his crop of apricots. Large quantities of dried apricots are exported from North Africa. (Mangin from Rapho-Guillumette)

Most of the people of Tunisia are Muslim Arabs, but there are also many Christians of French or Italian descent. About two thirds of the people are farmers. The rest are craftsmen, unskilled laborers, government workers, or people who own very small businesses. Thousands of Europeans left Tunisia when the country gained its independence. As in Algeria, this has reduced the number of professional people and left a shortage of skilled labor.

Tunis, the capital and principal port, is located on a lagoon. It is connected by a canal with the coastal town of La Goulette. The canal must be dredged constantly to keep it open. Bizerte in the north is an important French naval base. Its harbor is one of the best in the Mediterranean.



A Turkish boy uses an abacus in arithmetic class. (*International Communications Foundation*)

In this section we have studied countries which are part desert and part fertile cropland. We have seen how climatic conditions, fertility of the soil, and the desire of peoples and governments to improve conditions can affect the lives of men and women in these lands. We have also seen how progress in a country depends on the education of its people for professions and government, and training for jobs in industry. Now we are going to study some lands near the Mediterranean that have much more desert than farm land. Because of their dry climate we call these lands the Arid Lands.

WORKSHOP

I. CHAPTER REVIEW

A. Terms to Know

sultan	kibbutzim
minaret	cooperative farming
mosque	"no man's land"
middlemen	"Operation Tree"
Maronite	"Operation Flow"
refugees	irrigation

B. Places to Locate

Black Sea	Adana Plain
Dardanelles	Golden Horn
Sea of Marmara	Istanbul
Bosphorus	Negev
Maritima	Tel Aviv
Anatolian Plateau	Tell

C. Review Questions

1. What do the Mediterranean Lands of Asia and Africa have in common?
2. What problems do the people of these countries share with the people in the Mediterranean countries of Europe?
3. How could Lebanese farmers reduce the need for food imports?
4. Why are kibbutzim important to the Israelis?
5. What have Moroccans done to solve their land problems?

II. OBSERVATION ROOM

1. Check the map on page 100 to see why there could be difficulty over the water rights to the Jordan River. Can you find any other river on the globe that might cause the same problem? Try to find newspaper or magazine articles telling of the water-rights dispute over the Colorado River in the United States.
2. On a globe, trace the sea route of a ship going from the Black Sea to Lisbon. Name all the waterways through which it passes.
3. Study carefully Turkey's location. What important waterways does it control? Why do you think the Soviet Union might be anxious to gain control of Turkey?

III. THOUGHTFUL CORNER

1. What great improvements have the Turks made in their country since 1923? What part has education played in this?
2. How do the problems of Israel differ from those of other Mediterranean Lands? Why have the Israelis been able to use modern farming methods more successfully than most of their neighbors?
3. Why is there such a mixture of European and Arab peoples and customs in Northwest Africa?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. Find passages in the New Testament that refer to the Mediterranean surroundings in which Jesus lived and worked. Look for references to the occupations of the apostles, crops, food taken at the Paschal meal, etc.
2. Report on the role of Père Charles de Foucauld in mapping the northwest of Africa. Pretend you are Père Charles and are living in Morocco. Prepare excerpts from your diary to send home to friends in France.
3. Debate this statement: "Most countries benefit from being colonial possessions of countries that are more advanced."

B. Readings

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Part III

The Desert Lands

Water is the key to life. Even in the vast desert wastelands of the earth, man can make a home where he finds life-giving water. [Standard Oil Co. (N.J.)]

The Nature of the Desert

Our planet, earth, could be called the water planet. It is the only one of the sun's nine companions where water exists in large amounts. Water is the most common substance on the earth's surface. About three fourths of the earth's surface is ocean. The air around us contains thousands of millions of tons of water vapor. In one year's time almost seven thousand billion tons of rain fall from the sky on the United States alone.

Next to the air we breathe, water is the most important thing in our lives. Men, animals, and plants cannot live without water. For most of the world's people, water is plentiful. Most of us can turn a faucet and get water for drinking, for bathing, for watering lawns, and for washing our automobiles. We can hardly imagine what it is like to live in a land where water is scarce and precious, or where it does not exist at all.

Yet you know that in desert lands rainfall is so scarce that few if any plants can grow. Geographers give the name desert to any land where more water would evaporate in a year than falls as rain. Deserts generally have ten inches of rain or less year after year. In these lands, where water and plants are scarce, life is a constant struggle. Yet people have found ways to live in the desert.

Deserts may be hot, like the deserts of California and Mexico that you studied last year. Coastal deserts, however, if they are bordered by a cold ocean current, may be cool. This is true of the deserts of Peru and Chile. Hot or cool, wherever a land or region is very dry and has little or no vegetation, geographers call it a desert.

Desert farmers find ways to produce food by clearing the stones and irrigating the arid land. [Standard Oil Co. (N.J.)]





During this year we are going to study the greatest desert region in the world. What are these lands like? What kinds of plants and animals live there? What ways of life have the desert people developed to survive in such a barren land? What does the future hold for the desert people? These are some of the questions you will have answered as you read about this great expanse of desert and its people, many of whom still live much as people did when Jesus dwelt on the edge of the desert.

The Location of Deserts. Look at the vegetation map on page 55 to see where the deserts are located. Notice that many deserts are located near the 30° N. parallel. Now look at the climate map on page 15. Many regions of desert climate occur between 15° N. and 35° N. Notice that the Tropic of Cancer runs through the center of the desert regions that border the Mediterranean.

Nomadic life on the edge of the Sahara has changed little since the time of Christ. (Forman from Shostal)



Clumps of dry, reedy grass become greener after a welcome desert rain.
[Standard Oil Co. (N.J.)]

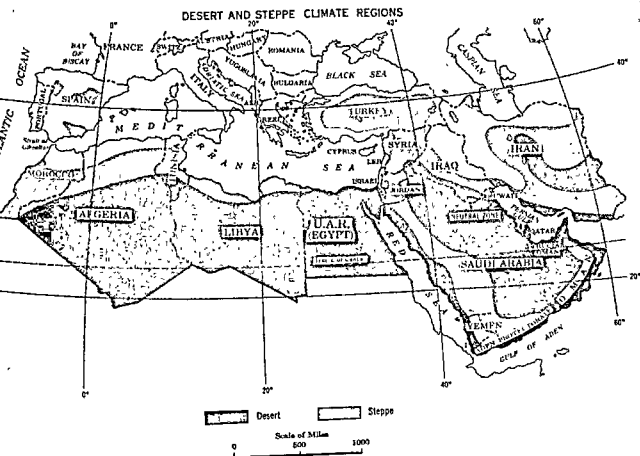
The great desert called the Sahara is the largest desert in the world. It is larger than the United States, if we leave out Alaska and Hawaii. The Sahara, whose name means desert, occupies nearly one third of Africa. It stretches from the Atlantic Ocean to the Red Sea.

On the other side of the Red Sea, the Arabian Desert, the Syrian Desert, and the salt deserts of Iran continue nearly halfway across Asia. The Arabian Desert covers most of the Arabian Peninsula.

The Edges of the Desert. Semiarid grasslands lie between the deserts and the humid climate regions well north and south of them. Grasses grow naturally in these regions, covering the ground completely, since these grasslands receive a little more rainfall than the deserts.

On the northern edge of the deserts of Africa and southwestern Asia, the bordering grassland is a steppe, covered with short, fine grass. Although the rainfall may range from 10 to 20 inches a year on the steppe, crops must be irrigated. The steppes are not thickly populated by any means, but more people live here than in the desert.

There is no sharp line between the grasslands and the desert regions. When you travel from the steppe into the desert, you notice only a gradual change in the land. When the vegetation becomes very scanty, with wide bare patches of ground, you know you are in the desert.



Rainfall in the Desert. Lack of rainfall is the most important feature of the desert. Year after year less than five inches of rain falls in the deserts of this region. Very few parts of this vast desert have enough water to support more than scattered clumps of vegetation.

Some parts of the desert receive almost no rain. At Cairo, Egypt, less than two inches of rain falls each year. In some years there is even less.

Figures of rainfall in the desert can be very misleading. A place may get 10 inches of rain one year and almost none the next year. One such place is the desert town of Port Etienne in the country of Mauritania, where the 20° N. latitude line crosses the west coast of Africa. The average annual rainfall there is three and a half inches. But one year only one tenth of an inch fell; the following year 12 inches fell in one day.

In the desert, rain does not fall each month. When it comes at all, on the northern edge of the desert it is likely to come in the cool months. On the southern edge it comes most often in the warm months. But rain may fall at any time.



Flooded wadis can be dammed to save the precious water in lands where water is scarce. (A.I.D.)

Sometimes the rain falls in sudden cloudbursts that flood the dry stream beds, which are called wadis. Bridges and irrigation systems may be destroyed. The sun-dried mud houses of the desert villagers may even dissolve. A sudden heavy downpour can ruin an entire crop of dates or grain. Soldiers of the famous French Foreign Legion, which for many decades patrolled the parts of the desert controlled by France, had very strict orders never to pitch camp in the desert wadis. This was because of the danger of being drowned if a sudden cloudburst came.

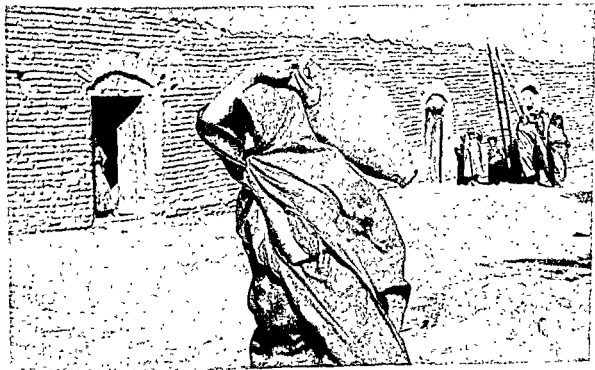
No one can accurately predict rainfall in the desert. Because rainfall is so unreliable, the life of men, animals, and plants on the desert is quite different from that in the humid parts of the world. Farming is impossible except on the oases.

There is little chance for water to accumulate in deserts. The ground stays moist only if the rain does not evaporate faster than it is replaced. Evaporation, when water changes into vapor and mixes with the air, happens very quickly in the dry atmosphere of the deserts. Even flash floods disappear completely in a few hours, since the parched soil soaks up most of the water and the sun evaporates the rest. Geographers tell us that in some deserts over 100 inches of water will evaporate in a year.

Desert Temperatures. Temperature also plays a very important part in the making of a desert. The Tropic of Cancer passes through the deserts of Africa and southwest Asia. This means that in summer the sun's rays are very direct. There are few rain clouds to shield the ground from the intense heat of the summer sun. The highest temperature ever recorded in the shade was measured in Libya at Azizia, the town just south of the city of Tripoli. It was 136° F. Travelers and workers in the desert have found that metal objects left in the sun can get as hot as 180° F. The temperature of the stony ground is often over 150° F., and those who walk on it may have their feet burned. Many desert dwellers wear rope-soled shoes, which protect their feet from the hot stone.

There are two seasons in the Sahara and the Arabian Desert. During the season of high sun (summer), the average air temperature is 85° F. to 95° F. During the season of low sun (winter), the average temperature is 60° F. to 70° F. In highland regions, at 6,000 or 9,000 feet, snow often falls in winter. Those who venture up into the mountains must dress warmly. Tamanrasset in southern Algeria has recorded 20° F., which is well below freezing. Antifreeze is needed in the radiators of the trucks, buses, and cars that cross the plateau south of the Atlas Mountains in winter.

During the flash floods that come so suddenly in arid lands, houses made of brick stand up better than houses with sun-dried mud walls. (United Nations)

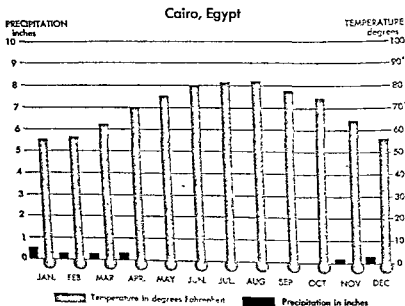


Are you surprised to hear that there is winter and freezing weather even in the desert? The dry air and the sun work together to produce many such surprises. Not only is there a seasonal change of temperature, but there is also a great change of temperature between night and day. If, after a winter day of travel in the bright warm sun, you were to put a shallow basin of water outside your tent for use in the morning, you might find a dish of ice before sunrise.

If you use your knowledge of geography, it is not hard to understand how the temperature may drop from 70° F. at noon to below freezing at night. In the desert, there is no blanket of clouds to shield the earth. The full effect of the sun's rays is felt during the day. When the sun sets you notice a great change in the temperature. The cloud blanket that keeps most of the world warm at night does not exist in the desert. The air quickly gives off the heat of the sun which it soaked up in the daytime.

Moist air takes longer to heat or cool than dry air because the water it contains has to be heated or cooled also. Since the desert air is very dry, it changes temperature quickly. In the desert, the dry night air quickly loses the energy it has absorbed during the day. Thus barren ground, dry air, and cloudless skies bring great changes in temperature from day to night in the desert regions. In one part of the Sahara a difference of 100° F. was once measured in less than 24 hours!

Between April and October, Cairo is very hot and gets no rain.





Desert Winds. The winds that blow over the deserts are very dry. In the latitudes you are studying, the steady winds blow from the northeast towards the equator. They are called the northeast trade winds. Go back now to the map of the world on page 8. Notice that the northeast winds blowing over North Africa from the Red Sea toward the Atlantic blow for hundreds of miles without ever crossing an ocean. They drop the water they contain and become very dry in their long overland journey. As they blow toward the equator, the winds are warmed by the sun. Warm dry winds pick up water from the land instead of dropping it. The farther south these winds go, the warmer they get. These hot, dry winds are one reason that desert lands exist on the southwestern edge of Eurasia and in North Africa.

Deserts are not always hot. There are cold, windy days, when heavy coats are needed. (Socony Mobil Oil Company, Inc.)



**A dash to the top of the sand dunes
is quite a race (Three Lions)**

There is another reason why little rain falls on the desert. The Arabian Desert and the Sahara are fairly level plateaus. Winds crossing them are not forced to rise and cool, so their water vapor does not condense into rain. Look at the climate map on page 15 and see whether you can follow the pattern of wind and rain.

Just as the desert temperature can change rapidly under certain conditions, so, too, can the winds. Violent winds can blow suddenly across the desert. They whip immense, stinging blasts of sand against man and beast and ground. There are no grasslands or scrub woodlands to break the onward rush of wind and sand.

The Land Surface. During their weeks of travel over the desert, caravans sometimes have to struggle through sand dunes where even the camels are slowed down. More often the caravan leaders take their caravans over ground covered by gravel or pebbles. They carefully avoid sections with bare rock and jagged stones.

The word desert makes us think of sand. The fact is that only about one fourth of all desert land is sandy. Turn back to the map of the desert region and find the place in the Arabian Desert called Rub'al Khali. There, in an area nearly as big as Texas, is the world's largest body of sand. There are thousands of square miles of piled-up sand in the Rub'al Khali. Sand hills 500 feet high have been seen by the few travelers who have ever tried to cross this section. The Sahara, too, has its great stretches of sand. This desert is dotted with great desert basins that are filled by shifting sand.

The sand dunes cannot serve as landmarks because the wind continually moves them. The large dunes may move only a few inches a year, but the small ones can move much more quickly. If you were to pitch camp in a sandy desert, in a few days you would see that the small dunes beside your tent might have moved

Water is the most precious treasure in the desert lands. In this Saudi Arabian village one well supplies water for all the villagers. (Lanks from Shostal)



several yards. The wind strikes the side of the dune, lifts sand to the sharp-edged top, and tumbles it down the other side like a wave breaking on the seashore. It is difficult to build or keep up highways or railroads in regions of shifting sand dunes.

In contrast to the shifting sands, there are rocky deserts, places where the wind has blown the loose soil away and left broad rocky areas. The softer rock has been worn away, and the hard rock remains as jagged forms. When rains fall in the mountains, the rain water wears deep, steep-sided beds in this type of desert. Then these wadis become full of rushing water that finally drains into the soft sand deserts. The rocky desert is very difficult to cross, and caravans avoid it if possible. Roads built across rocky deserts must have bridges over the wadis. These bridges are built and kept up at great cost even though the wadis may be dry all year.

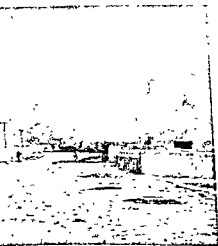
A third type of desert surface is the gravel-top or *desert pavement*. This is the type of desert that travelers favor. It is usually a very level gravel plain. Large areas of the Sahara have this gravel surface. The pebbles and stones are rounded, and the space between them is often filled with loose soil and sand.

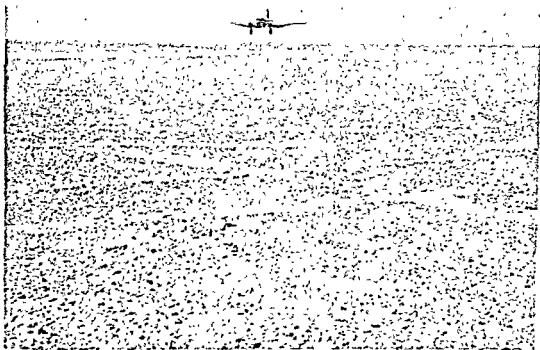
Mountains in the desert are often separated by wide alluvial basins where water draining from the mountains has left behind stones and soil. If these basins are shallow, water lies on the surface and is evaporated by the sun. As the sun evaporates the water, it leaves behind the salts that the water has picked up in its journey from the mountains. Last year you read about similar salt basins in the United States. Very few plants can grow in these regions because salt is a poison for most plants.

Desert Vegetation. Desert plants do not grow close together. This is because there is not enough water to support many plants in a small area. Many seeds sprout, but only those with the strongest roots survive. Some plants have roots that spread out just under the surface of the soil. These roots cover a broad area to get as much as possible of the available water. Other plants have long *tap roots* which reach deep into the ground.

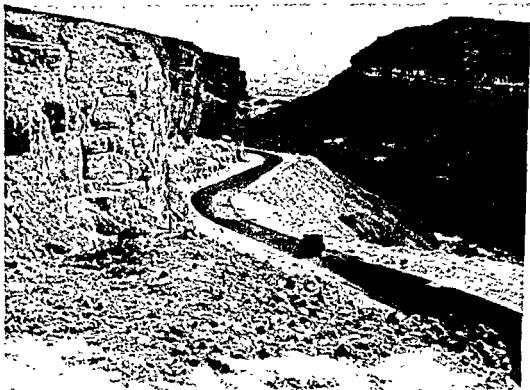
Desert plants are adapted in a number of ways to conserve water. Some plants appear to be dead most of the time, springing into bloom only when water is available. Other plants have ways of storing water over the long dry periods. These water-storing plants have few or no leaves from which water can be evaporated. They may have a coating of a wax-like material that seals in the water. Many water-storing plants have thorns, which protect the surfaces of the plants by screening them from wind. Thorns protect plants from some animals. But as we shall see, most desert animals seem to relish thorns. You have probably seen prickly cactuses that grow in our own country.

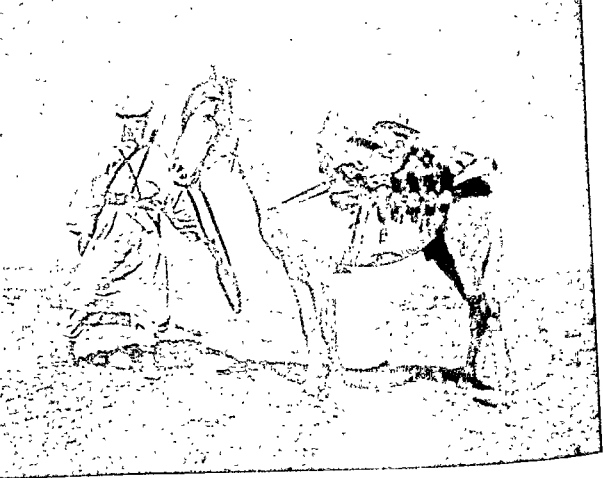
During a sand storm, dust fills the air like a fog. Life becomes very uncomfortable. (Arabian American Oil Company)





Camel caravans prefer to cross the level, gravel-covered desert like the flat stretch over which the airplane is flying. Rough, rocky desert, with its ups and downs, is hard to cross. Sandy desert, because of its constantly shifting sand, is also avoided by caravans. Today, on roads being built across the deserts, cars and trucks can travel much faster than camels. (Socony Mobil Oil Company, Inc.; Monkmeier)





Arabian horses are beautiful, intelligent, and swift. They sometimes sleep in their masters' tents. (Wyatt from Photo Researchers)

Soils of the Desert. Desert soils lack humus, the decayed plant material that holds water and enriches the soil. However, since desert soils do contain many more minerals than most soils, they are quite fertile. Minerals remain in the soil because they are not washed away by frequent rains. Except for the salty areas, much of the desert would be good farm land if water could be brought to it.

Desert Animals. The animals of the desert, like the desert plants, are adapted to their surroundings. There is a greater variety of animal life than you might expect. Unlike man, desert animals can live for long periods in the desert without water. Small animals live in underground burrows where the temperature may be a steady 60° F. from morning to night. Here they spend the mid-day hours to avoid the searing sun. They come out at dawn or at sundown when it is cool enough for them to seek food.

Of all the desert animals, none is so important to man as the camel. There are no wild camels anywhere in the world. They are all domestic animals. Camels, of course, cannot burrow underground, but they too are adapted to the desert. Camels can go

long distances without water and eat even the thorniest shrubs. A camel can close its eyes and nostrils tightly, so that the stinging dust of the sandstorms does not injure them. The camel's large padded feet take firm hold even of shifting sands. Camels can carry 300 pounds over long distances and several times that weight for shorter journeys. The desert nomads could hardly survive without camels or their other domestic animals.

Horses, donkeys, sheep, and goats are all prized possessions of desert dwellers. The Arab horses are famous for their intelligence, high spirits, and speed. These qualities have been bred into them so that they can survive on the desert. Arab horses, particularly the mares, were the pride of the ancient Bedouins of Arabia. Both the caravan robber and the caravan defender depended on the speed and endurance of their horses. Many of the best race horses in the world are descendants of these desert steeds.

Another domestic animal, the donkey, is almost as well adapted to desert dryness as the camel. He is the beast of burden of the oasis dweller. Goats, which are both milked and eaten, can survive on sparse vegetation better than any other domestic animal.

Water Supply in the Desert. On the desert, and on the steppe lands around it, water must be found if any kind of life is to survive. Scientists all over the world are trying to find new sources of fresh water. The salt water that covers three fourths of the earth's surface is useless in its natural state for land animals or for plants. Much more land could be farmed if a cheap, easy way could be found to change salt water into fresh water. Man is doing this now by using purifiers, or stills, powered by the sun or by chemical fuels. But these methods are still too costly to bring water to the desert lands.

The water from the artesian well on the left gushes up by natural pressure. The well on the right needs hand labor. (left, Arab Information Center; right, Gidal from Monkmeyer)



Where does water come from? The oceans are a vast reservoir from which the sun evaporates water, leaving the salts behind. The evaporated water, or water vapor, is absorbed into the atmosphere. When water-bearing winds blow over high land they become cooler. The water vapor condenses and falls as rain or snow.

What happens to the rain or snow depends upon the land and climate where it falls. In desert areas, where very little rain falls to begin with, the dry winds evaporate much of the rain water and return it to the atmosphere. A large part of the rain water soaks

Date palms in the desert of southern Egypt find enough runoff water to allow them to grow between the sand dunes. (Jean-Philippe Charbonnier—Réalités)



into the parched ground. This is especially true in the sand deserts, where the water soaks deeply into the sand and trickles back to the ocean.

The rest of the water becomes *runoff*, which is water that drains into streams, lakes, and rivers. The end of the run is often the ocean or an inland lake or sea. Where the land is very flat and low-lying, some of the runoff collects in marshes. Runoff in the hard rocky deserts flows in the wadis until it evaporates or soaks into the ground of the sand deserts.

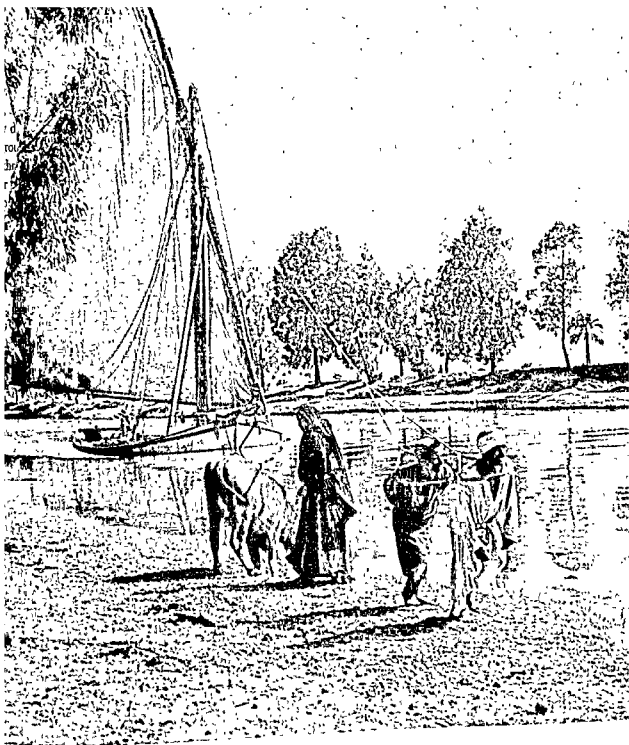
Although the desert is a dry land, there are many places where water does exist all through the year. In these places, permanent camps, villages, and even cities have grown up. Well-watered places in the desert where men may live and grow crops are called oases. There are several kinds of oases.

Oases at Springs and Wells. Water that seeps into the ground penetrates until it reaches a solid rock layer underneath. Then it fills the spaces between the soil particles just as water fills the spaces in a sponge. The top of this layer of underground water is called the *ground water table*. Look at the diagram in the glossary to see how it is formed.

When the ground above the water table gets very dry, some of the water is drawn up into the dry soil, where it evaporates. This lowers the water table. When the water table is even with the surface of the ground the water forms marshes. Did you know that you often see an exposed portion of the water table when you look at a lake?

You can see that the water table is very important in the desert. Bedouins in the Arabian Desert have surprised scientists who work there by finding water without using instruments. Long years of living among the sand dunes have taught the Bedouins that the water table can be reached more easily in the low pockets between the dunes. They look for little clumps of desert grass thrusting tough stalks up out of the sand. The sprigs of desert grass are a sign that the water table may be reached by digging a well. If the sand basins are near good sources of runoff water, many wells may be dug. Then prosperous oases develop, with many homes, farms, and groves of date palms. Some large towns have been built on oases.

In some areas, wells do not have to be dug because the water rises naturally to the surface as springs. In other places the water table is lower because the layer of water-bearing rock is far below the surface. The depth of the underlying bedrock varies from place to place. In the rocky deserts, the bedrock is on the surface. In other places it may be covered by hundreds of feet of broken rock, loose stones, or sand.



Without wind in its sails, a felucca cannot move. The two men, harnessed together, pull a felucca along the Nile. (Annan Photo Features)

the well. Artesian wells do not depend on the water table, but only on the water trapped in the rock.

Artesian wells are an important source of water for several large oases in the eastern Sahara. They are also vital to many oases at the northern edge of the desert in Algeria and Tunisia where the mountains and plateaus gradually taper off to more level ground.

Water from Alluvial Fans. A great deal of water sinks through the porous soils of the alluvial fans. Desert dwellers have learned to dig wells at the points of the fans where they begin to spread out. The water table here can be reached fairly easily. Many oases depend on this source of water.

In some regions the alluvial fans have grown very large over the centuries and have spread out into long, gently sloping gravel beds. In the Iranian Desert east of Arabia, clever men have found a way to bring water from the points of the alluvial fans to their farm lands farther from the mountains. They have dug long tunnels that slope upward at a very slight angle until the water table under the higher ground is reached. The water flows gently under the pull of gravity until it can be drawn off at wells dug to meet the tunnel. The tunnels, called *kanats*, may be five or ten miles long and five or six feet deep. It was a great feat of engineering to build them. In Iran water is so precious that many of the wells are lined with hand-decorated tiles.

The Stream Oases. The most important, but rarest, form of oasis depends on a continually flowing stream of water. In the desert areas, the only streams that flow all year and empty into the sea start in a region of high rainfall. Very few rivers ever succeed in crossing the desert. The Nile in Egypt and the Tigris-Euphrates in Syria and Iraq supply the only two stream oases in this region. These rivers support many times as many people as all the other oases put together. They have their sources in regions of high rainfall.

Locate the sources of these rivers on your map on page 175. The Tigris and Euphrates begin in the highlands of Turkey. The Nile has several sources in the tropical regions of East Africa. The Nile and the Tigris-Euphrates, like other desert rivers, actually become smaller in their journey to the sea. They lose most of their water through evaporation, although some sinks into the ground. One result of the evaporation is that the river water becomes quite salty.

You have now seen how the climate, terrain, vegetation, and water supply greatly limit where people can live in the arid regions. In the next chapter you will see how they live. Life in the deserts and steppes is often quite different from life in more humid parts of the world.

WORKSHOP

I. CHAPTER REVIEW

A. Terms to Know

wadi	domestic animals
French Foreign Legion	Bedouin
evaporation	runoff
northeast trade winds	water table
caravan	bedrock
desert pavement	artesian well
tap root	kanat

B. Places to Locate

Sahara	Cairo
Syrian Desert	Port Etienne
Iranian Desert	Azizia
Arabian Desert	Tamanrasset
Arabian Peninsula	Rub'al Khali

C. Review Questions

1. Why could we call earth the water planet?
2. What is a desert? Are deserts always hot? Explain.
3. Explain why no one can accurately predict rainfall in the desert.
4. Why do desert temperatures often vary as much as 50 degrees in one day?
5. Describe three kinds of land surface in the deserts of northern Africa and the Arabian Peninsula.
6. Describe four places where desert dwellers can find water.

II. OBSERVATION ROOM

1. On a globe find the Tropic of Cancer. What is its latitude? Name the desert regions of Africa and southwest Asia through which the Tropic of Cancer passes.
2. Study the diagram of a typical artesian well on page 134. Explain the process of getting water from this type of well. Have you ever seen an artesian well in operation? Where? Write a short description of what you saw.
3. Look carefully at the pictures in this chapter to see how

the desert peoples have adapted their clothing to the climate. Why do you think they chose this type of clothing?

III. THOUGHTFUL CORNER

1. Explain why the desert lands are sometimes called lands of contrast. List as many examples as you can of contrasts in climate, water, and landforms.
2. Why aren't camels used in the deserts of the United States?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. See if you can find out what progress scientists have made in changing salt water into fresh water. This process is called "sweetening water." Prepare an illustrated report showing how water is sweetened. Tell also what changes could be made in the desert regions if sweetened water were available.
2. Make a relief model of the different land surfaces that can be found in the desert. Include little flags or labels to identify each area.
3. Prepare a bulletin board display on comparative rainfall and temperatures. Choose ten or fifteen major cities throughout the world. Then prepare charts showing the average annual rainfall and temperature in each city. Be sure to choose cities from many different areas.

B. Readings

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- Malkus, Akiba S. *The Sea and Its Rivers*. Garden City, N.Y.: Doubleday & Co., Inc., 1956.
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(Annan Photo Features)

CHAPTER 8

Life in the Arid Lands

Peoples of the Desert. If you visited the oases of the Sahara, you would meet many Negroes. The ancestors of these people came to the desert from the grasslands and tropical forest regions to the south. They were probably the first inhabitants of the desert.

The Negro settlers found a number of ways to solve the problem of supplying water for their desert homes. They settled only where wells could be dug, where there were springs in plateau regions, or where an underground stream surfaced for a few miles.

The Negroes took advantage of the high water table beneath the gravel wadi beds. In some cases they could obtain artesian well water from porous rock layers beneath the rocky desert. The Negro desert dwellers developed a way of life that is still found in oases throughout the Sahara.

Meanwhile the people of Arabia had discovered similar ways of desert living. After the seventh century, the Arabs spread westward from Arabia into North Africa. The life of a tribe called the Berbers, who lived along the Mediterranean Sea west of the Nile, was completely changed by contact with the Arabs. The Berbers learned the Arab religion, the use of the dromedary, or one-humped camel, and the cultivation of the valuable date palm. In a few years the Berbers changed from a tribe working the land to a tribe of nomads.

Using camels and horses, the Berbers and Arabs moved from oasis to oasis, conquering the Negroes and taking possession of the desert. Nomadic life made the Berbers hardy and resourceful. They quickly learned to pasture flocks on the steppe grasslands around the desert.

The Berbers and Arabs liked the life of the wandering herdsman and raider. Rather than live in the oases, they returned from time to time to collect grain and dates from the people they had conquered. They wanted a steady supply of products from the oasis farms. To insure this supply, they planted date palms in the low basins between the sand dunes. The palms, with their long roots, were able to find water that lay far beneath the surface of the desert.

The people of the Sahara are of mixed races. The color of their skin may vary from white to dark brown. (left, McGinnis from Monkmeyer; right, French Embassy Press & Information Division)

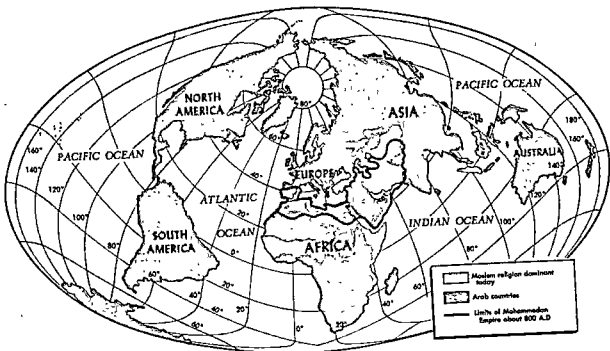


The nomads organized camel caravans and began to trade across the desert. Northbound caravans carried ivory, ostrich feathers, gold, and slaves from south of the Sahara to the Mediterranean Lands. Returning caravans brought salt, sugar, weapons, and some light manufactured articles that were needed by the peoples of central Africa.

The Tuareg, a Berber tribe that settled in the Ahaggar Mountains, became rich by demanding toll from the caravans of other tribes that had to stop at their oases. The Tuareg tribesmen branched out into the desert in many directions. Their blue-veiled men were the most feared warriors of the Sahara. They hated any work except fighting and raiding. Gradually, over a long period of time, their power was broken by the French Foreign Legion.

The Berbers love their horses. They show their skill at riding and shooting by imitating battles on horseback. (Weiss from *Rapho-Guillumette*)





The Muslim Religion. The nomads and the oasis dwellers have many things in common. In the desert and steppe areas you are studying, almost all the people are Muslims. The Koran, their bible, is written in Arabic. From Iraq to Morocco, everyone who can read reads this one language. However, the spoken language varies greatly from place to place, and local dialects are very numerous.

Islam, the Muslim religion, was founded by Mohammed. The customs of this religion are observed more or less faithfully by all Muslims. Once in his lifetime, every devout Muslim tries to make the pilgrimage to Mecca, the birthplace of Mohammed. Every Muslim who has made this expensive and difficult journey receives the respected title of *Hadj* and feels assured of eternal salvation. The devout Muslim pauses five times a day to praise God, whom he calls Allah. If he is in the desert, the position of the sun tells him when to dismount from his camel, face Mecca, and pray. In the towns and villages a Muslim religious official chants the call to prayer from the spire, or minaret, of the Moslem church, or mosque.

The strict Muslim does not touch food or drink between sunrise and sunset during the 30 days of *Ramadan*, which corresponds to our lenten season. He eats only after nightfall and never at any

time drinks alcohol or eats pork. In the past Muslim women covered their faces with veils. A break in this tradition has now been made in most Arab cities and even in the rural areas of many Muslim countries.

THE DESERT NOMADS

In the vastness of the desert, the lives of the nomads may vary from place to place. But the Baluchi of southern Iran, the Kurds of northern Iran, the Bedouins of Arabia, and the Tuareg and other peoples of the Sahara have many customs in common.

The lives of the nomads depend on the animals they raise. The nomads' food, shelter, clothing, protection, and livelihood all depend upon the camel, the flocks of goats or sheep, the donkey, and horse. The nomads may roam great distances in search of pasture and water for their animals. The needs of the animals determine when and where the nomads move. In a rainy season grass grows fast, and the flocks find food easily. In the summer months the water supply is scarce, and the pasture grasses dry up. Then the nomads of the interior are often obliged to make long marches to the oases or to the mountain pastures. During most of the year scouts spend their whole time in the saddle searching for new pastures.

A nomad owns only what his camels can carry. He owns no land, but the unwritten law of the desert has built invisible fences around the pastures of each tribe. The breaking of this law has been a cause of war among the tribes.

The great tribes that once inhabited the deserts are dwindling in numbers, but the bond of loyalty among the members of a tribe is as great as it was years ago. A man may be starving, but he will never steal from a fellow tribesman. However, any tribesman will gladly join a desert raid against another tribe.

Tribal Life. The tribes are governed according to the patriarchal system. This means that the oldest man is the head of his family, including all his descendants and their wives. He is called the *sheik*, or chief.

The sparseness of desert vegetation has caused the tribes to break up into small units of 50 to 100 tents. Each family has at least one tent, made of hides or black goat-hair cloth woven by the women. The tents are supported by poles at the four corners and at the center, so that the roof appears nearly flat. The sides are loose enough to permit air to circulate freely, yet long enough to be fastened down securely when the strong desert winds and sandstorms blow.



The wealth of a nomadic tribe can be measured by the number of animals owned. (Erikson from Shostal)



The sheik, or chief of the tribe, attended by his manservant, is preparing for guests. They will sit cross-legged on the carpeted ground and drink tea from the glasses on the tray. (Schmidt from Shostal)

When nomads pitch camp, the women set up the tents. They also unpack their simple household furnishings, such as mats, rugs, cooking utensils, spinning and weaving materials, food bags, and water containers. They carry only things that are essential to life.



Five times a day Muslims face toward Mecca in Saudi Arabia and kneel to pray. Mecca is a holy city for the Muslims. (Arabian American Oil Company)



Moroccan women still wear veils in the street. (M. & E. Bernheim from Rapho-Guillumette)

Nomads carry few dishes or utensils with them. They eat from one large dish and use fingers instead of forks. (A.I.D.)



Nomads have no need for knives and forks. Desert etiquette demands that a person eat with the thumb and the first two fingers. This is an example of a custom that arises from an environment very different from ours. We must remember that ways of life different from ours, or customs we do not practice or even understand are as worthy of respect as our own.

The clothing of desert dwellers, whether on the oases or in the open desert, is alike for all. They wear long flowing robes to protect them from the burning heat of the day and to keep them warm at night. The looseness of the robes permits air to circulate freely. Head coverings may differ according to the areas of the desert in which the wearers live.

Nomads are very hospitable to any stranger who comes to their tents. Even an enemy who asks for shelter and food is welcomed. When an enemy departs, the desert code demands that not the slightest effort be made to follow him for two days. This gives him a 100-mile start.

No guest ever stays longer than two and a half days. Food and water are too scarce to allow for longer visits.

The nomadic tribes who are part Berber or Arab and part Negro are the real controllers of the oases. Often they demand payment from the oasis dwellers in return for a promise not to raid the oasis. Sometimes they promise to protect the oasis from other raiding tribes. The patient donkeys of the oases are hardly the steeds to do battle against those who come on swift camels.

The Negroes who did not intermarry with the Berbers or Arabs are among the weaker tribes of the central, western, and southern Sahara. They have often been little more than slaves of the strong nomadic tribes of mixed blood.

The family goes to market. Men, women, and children wear long, loose robes. [Standard Oil Co. (N.J.)]





Hungry boys and girls will be glad to meet this little Egyptian girl peddling bread and cakes. (Annan Photo Features)

Like many aspects of desert living, the domination of oasis dwellers by the nomads is changing. Contact with the outside world is bringing improvements in education and health to the oasis farmer. Regular bus and plane service and improved communications strengthen the power of central governments. This has brought more stability to oasis life. Many men leave their oases to serve in the armed forces of their country and return with ideas to improve their homes.

The nomads at the edge of the Arabian Desert and the northwestern Sahara live very much as do those of the interior. However, they have the advantage of closeness to the summer mountain pastures in the steppes. These people now migrate to the steppe grasslands in great numbers. Some of them turn to dry farming on the steppes as a part-time occupation.

The population of the desert areas can only be guessed, since a nomad has no address. There are probably about two or three million people scattered through the Sahara. This figure includes nomads and oasis dwellers. It does not include the people of the great oasis cities along the Nile River. The nomad Bedouins of Arabia, who are estimated to number between 50,000 and 100,000, are far outnumbered by the people who live on Arabia's many oases.

THE OASIS DWELLERS

Desert oases vary in size. Some are only stopping places, and are uninhabited, since they have only a well that may readily dry up. Others are small oases, supporting from 20 to 50 families. Still others are large oases with several villages. Here several hundred or thousand people may till the land, tend many thousands of date palms, and support a crowded bazaar, or market place. Finally, there are the great oasis cities of Cairo, Baghdad, Damascus, Tehran, and others. These important cities developed because of the trade brought by camel caravans. You will read more about caravans on page 153.

Life on an Oasis. An oasis looks wonderfully green from the distance. Whether you approach by camel, automobile, or bus, the refreshing sight of the grove of tall date palms coaxes you closer. Whether you have come over the desert or dropped down at the tiny landing strip in a plane, the thought of cool shade and water hurries you on.

Many of the small oasis towns are walled for protection from raiders and from desert sand. The narrow gate leads to a dry, dusty street on which many youngsters are at play. You pass between rows of windowless, whitewashed houses built of sun-dried mud. The houses stand close to one another so that no precious land is wasted. The walls are very thick to keep out the daytime heat and to retain heat at night.

Bedovins and townspeople trade wares and the local news in a walled oasis town. (Arabian American Oil Company)



The flat roofs are reached by a ladder. At night in this dry climate people can sleep on the roofs without fear of rain. In the daytime women work here at drying fruits. They may wander across the roof to talk with friends at work on neighboring rooftops.

As you walk along the streets or lanes, you notice that no one has a lawn to match the green tops of the palms. Water is too precious for growing grass. It must be used for the food crops that can be seen a short distance from the houses.

The street on which you have been walking suddenly changes. On the mud-brick building at your right is a billboard, and a modern gas pump stands in front of it. The clang of metal tells you that the garage is a busy place.

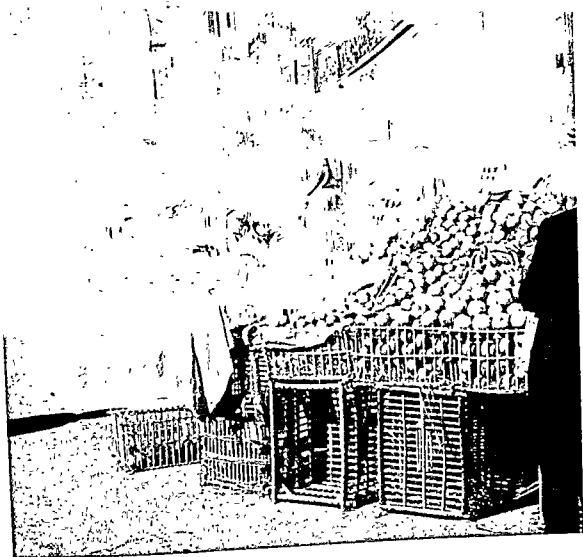
You turn from the mechanics working on the wide-tired desert trucks to the boys who have followed you up the street. The boys are dressed in light-colored tunics that cover them from head to toe and hide the shorter garments underneath. One boy eagerly tells you that his father drives one of the trucks across the motor roads. Another says that his father is the hotel keeper on this oasis, another that his father owns forty date palms, still another that his father has a shop in the market.

"Wouldn't you like to see the market?" they ask.

The children accompany you as you turn into the side streets and make your way into the crowded alleys lined with shops. One whole street is occupied by weavers, who display woolen cloth. In another street coppersmiths have spread out pots and pans.

A Berber woman prepares a meal in the old-fashioned way, but a village tailor has a modern machine. (left, Weiss from Rapho-Guillumette; right, Philip Gendreau, N.Y.)





Here are dates waiting to be traded to the nomads. Tea, sugar, and other staple items from outside the oasis have been brought in by camel caravan or motor truck. There are even portable phonographs and records.

Selling and buying is an art among the Arabs. They are honor-bound to bargain loudly and even violently until they agree on a price. The instant a sale is made, buyer and seller are again good friends.

As you reach the end of the alley, you find yourself once more in the main street, not far from the oasis hotel. The hotel is not large. A man and his wife own the hotel and provide meals and lodging for a few traders and tourists. On the more important oases of the northern Sahara, large new hotels and restaurants provide many modern conveniences for tourists.

Arabs love to bargain. The price of the fruit will depend on how much the stall-holder thinks the buyer will pay. (Philip Gendreau, N.Y.)

Oasis Farming. In the early afternoon, you follow the example of the desert dwellers, and rest for several hours. When the heat of the day is over, someone suggests that a walk to the farms will interest you.

As you walk through the fields, you notice the primitive tools used by the farmers. The wooden plows do not penetrate the soil very deeply. There are no machines for harvesting or threshing. The irrigation ditches that lead from the wells to the vegetable patches are dug by hand.

Fields of barley and wheat spread out under a second story of grapevines and peach, fig, and citrus trees. A third layer of date palms towers over everything and provides shade.

Date palms are so valuable that farmers plant only enough other crops to use the water not needed by the palms. The farmers say that each date palm bears five to ten bunches of dates. Each bunch may have over 1,000 dates, and in some varieties a bunch may weigh nearly 100 pounds. Dates mean wealth to the oasis farmer. Dates are sold to the local people or are exported. The date is a very nourishing fruit.

Since sandy soil often hardens after irrigation, the soil around date palms is usually turned over every three years. These dates are ready for harvesting. (Arabian American Oil Company)





Oasis Crops. Oasis crops vary little. In addition to dates, farmers grow grains, forage, vegetables, and fruits. Cotton and sugar are grown only in the larger oases on the desert fringe because they need more water than most oasis crops.

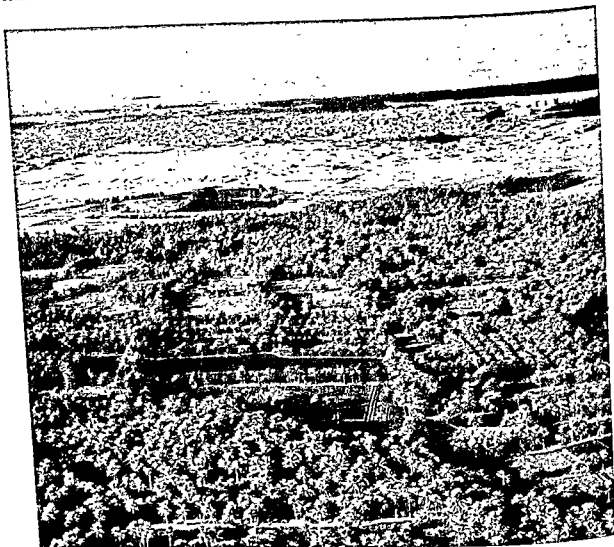
Egypt's Nile Valley is the greatest oasis in the world. Cotton is a major export and cash crop. One fifth of Egypt's land is used for this crop. Corn and wheat are the major grain crops. Rice is becoming more important because its yield per acre is high. These grains, together with barley and sorghum, occupy about half the Nile cropland. Vegetables and sugar cane are also grown in smaller quantities.

These date palms have been planted in deep holes dug in the sandy desert. Their roots can thus reach the water underground. It is hard work to dig the holes and keep them from refilling with sand. (French Embassy Press & Information Division)

The greatest date oasis of the world is along the lower Tigris and Euphrates rivers. One third of the world's date palms are grown in lower Iraq along canals stretching from these rivers into the desert. These canals are filled each day when the rising tide of the Persian Gulf pushes back the fresh water of the Shatt al Arab, into which the Tigris and Euphrates empty. Oasis farmers all over the desert are finding that commercial production of dates is a good source of income. The Iraqis cultivate ordinary grains as well and have started to grow cotton.

The oases of Saudi Arabia are usually small. However, there are strings of oases in the southwest that are famous for their dates. In the east, the Hofuf oasis, the largest in the Arabian Desert, is ringed by over two million date palms.

Patches of ground between the date palms are tilled on the Hofuf oasis.
(Arabian American Oil Company)





CHANGING PATTERNS OF LIFE

Not very many years ago, guarding and guiding trade caravans were common means of livelihood in the desert. Many men of each tribe were traders, who traveled from south to north with products for exchange. Caravans brought salt from places in the desert where streams sank into the sand or evaporated. Some caravans numbered several thousand men and up to 25,000 camels. About half the camels of the caravan carried salt. The others carried provisions for the men and animals, such as dried dates, grain, and water.

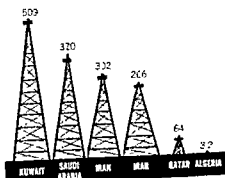
Today the caravan trails are used less and less. The large caravans have practically disappeared. Smaller bands travel from out-of-the-way oases to large centers on the main bus routes. Very few camel caravans follow the old north-south caravan routes. People come to the trading centers only to trade animal products such as hides, cheese, and wool. In return they get dates, grain, sugar, wrist watches, and trinkets.

Railroads have penetrated the fringes of the northern and southern deserts as well as the Nile Valley. These railroads usually are narrow-gauge, with the rails closer together than those in the United States.

Oil in the Desert. Not every desert settlement is close to a supply of water. Where men mine minerals or drill for oil they must often pipe water in from many miles away or have it carried to the settlement in tank cars. The expense of bringing in water is worthwhile because of the abundant mineral wealth of the desert. Half the world's oil is in the deserts of the Middle East. Because of this, a new type of transportation has been added to the desert. Oil pipelines now stretch across the Arabian, Syrian, and the northern Sahara deserts.

Twenty years ago there were few roads for motor vehicles across the desert. Since the discovery of oil, cars and trucks have become as common as the camel. (*Arab Information Center*)

OIL PRODUCTION
MILLION BARRELS IN 1939



	PRODUCTION	RESERVES
BAHREIN	119	0.17
TURKEY	2.3	0.06
ISRAEL	0.6	0.02



Silver paint on oil pipes reflects heat and keeps the oil from turning to gas.
[Standard Oil Co. (N.J.)]

Making Fresh Water from the Sun's Energy. The desert lands are surrounded by great bodies of sea water, such as the Persian Gulf, the Red Sea, the Mediterranean Sea and the Atlantic Ocean. If the salt could be removed from them, these would give an unending supply of fresh water. The oldest way of purifying salt water is to boil it and then condense the steam. The minerals stay behind in the boiler, and the pure water is ready for use.

An apparatus that changes water to steam and back again to water is called a still. Many stills are now being made for use in the desert oil-pumping stations. Solar stills, powered by the sun, are beginning to provide another source of water in the desert. Eventually more of this great expanse of land may become productive.

IRRIGATING THE RIVER OASES

One reason why ancient civilizations flourished in river valleys was that the rivers solved man's great need for water. The valleys

of the Nile and the Tigris and Euphrates rivers provided water, fertile soil, abundant sunshine, and a long growing season. In addition, men discovered the possibilities of irrigation. By lifting water to the fields from the river or by letting the natural floods of the rivers cover their lands, they were able to enrich the earth. This provided them with more food and a better way of life than they had enjoyed in their nomadic life as shepherds.

Methods of Irrigation. The ancient people of the river valleys developed many ways of lifting the water from the rivers to the level of their fields. These methods, still in use today, each involved the use of a simple pump. One is a type of lever. Another uses a cogged wheel. A third lifts water on a screw that turns in a cylinder.

The workers found it much easier to lift water by these means than to lift it from the river bucket by bucket, carry it up the banks of the river, and pour it onto the thirsty ground. Today a few wealthy farmers have installed motor-driven water wheels, but most of the pumping machines are still powered by oxen, water buffalo, or camel. Those who own no animals turn the wheels themselves.

*This irrigation project will make more land suitable for farming in Iran.
(United Nations)*



Until the twentieth century, most of the water was brought to the fields by the flooding of rivers. Irrigation by natural flooding is called *basin irrigation*. Low mud embankments, two or three feet high, are built around the fields to catch the flood waters. These basins hold the water on the land after the normal flooding.

As the water soaks into the ground, fine soil particles carried down to the river by mountain torrents settle on the land. When sufficient water has soaked in, the workers break the embankments, and the excess water drains off. Even today in upper Egypt you can see a peasant building the little mud barriers to control the water that flows in or out of his fields at flood time.

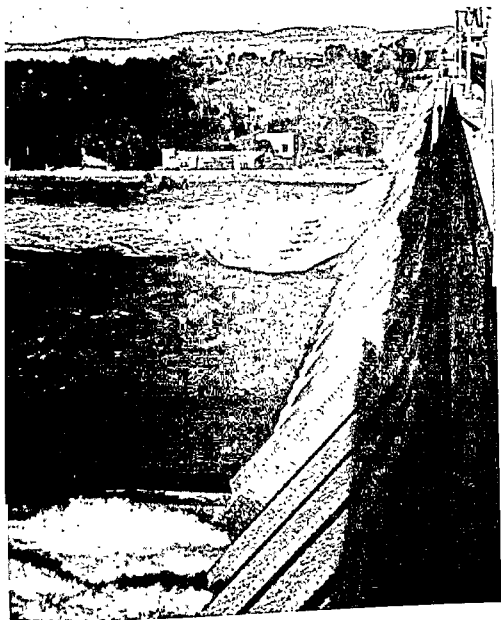
The twentieth century has brought some major changes. Basin irrigation is giving way to *perennial irrigation*. Perennial irrigation means that water is available all year long, rather than just at flood time. This is made possible because large modern dams store water that formerly flowed out to sea and was wasted. These new dams, such as the one at Aswan, act as reservoirs from which water can be released as needed. Smaller dams collect water and divert it to the farm lands through canals. These canals are built to allow the water to flow gently into the irrigation ditches in the fields.

Irrigation requires endless care and work, but this work is rewarding. Irrigation improves the crops and makes the yield greater. On irrigated land, the yield is frequently two or three times that of non-irrigated land. The farmer does not have to depend on differences in the amount of rainfall. He may grow several crops on the same plot of land in one year. As many as five cuttings of alfalfa may be made in one year. Alfalfa is used for animal fodder, which is greatly needed. Since it also enriches the soil, most farmers try to grow some alfalfa each year.

Irrigation Problems. The irrigation farmer has many problems, too. As you have learned, desert conditions cause rapid evaporation. Unless the irrigation water is drained away, mineral salts collect as the water evaporates and build up to form salt basins. These are called alkali flats. Since this salty soil is not suitable for crops, the salt must be washed out of the ground periodically. The Tigris-Euphrates Valley has this problem in its wide flat plain.

Farmers must also take care that the ground does not become waterlogged. If the excess water cannot soak into the ground or run off, the area becomes too wet and marshy for certain types of crops. For irrigation to be effective, the land must be level. If the land is not level, water collects in the depressions and does not flow evenly to all parts of the fields. Much care is required to level off the ground so that water will not be wasted.

Many irrigation systems in Egypt have been in operation since ancient times. The first irrigation projects were probably built in



The Aswan Dam has made it possible for Egyptians to control the flood waters of the Nile. (*International Harvester Export Company*)

the Tigris-Euphrates Valley. Most of these ancient works were destroyed by invading armies as they poured over the bridgelands. Dams broken by invaders let loose flood waters that covered the flat lowlands, destroyed towns, and shifted the river courses. People were forced to abandon the few irrigation works that remained. Many are now being rebuilt, and the Tigris-Euphrates Valley is increasing its agricultural yield. In Egypt, however, the population is increasing so rapidly that it is not possible to produce enough food. Egypt must find new ways to feed her people.

Irrigation in these warm countries has a hidden danger. Snail fever is very easily caught by the workers in the fields. Snails breed freely and rapidly in the warm muddy waters of the irrigation ditches. A disease-carrying worm lives in the snail. As the farmers stand in the ditches to guide the water into the furrows of their fields, the worms bore into their feet. Once the worm enters a man or woman or child, it causes fever and severe illness.

People who are afflicted with this disease cannot do the work necessary to earn a livelihood. Many die of it. In parts of some irrigated farm lands, as many as 90 out of every 100 persons have snail fever. Health experts are working to prevent the spread of this disease, but they have not yet succeeded.

PROBLEMS OF THE ARID LANDS

In spite of the rapid changes in the desert, there are barriers that hinder progress. One of these barriers is illiteracy. People who can neither read nor write are called illiterates. Everything an illiterate learns he must hear from someone else or work out for himself. In the Middle East and North Africa as many as nine out of ten people are illiterate. Few who can read or write get an opportunity for higher education.

The Need for Education. Can you imagine yourself wading all day long in water-filled ditches? This is what the men, women, and children have to do along the desert rivers. In order to make a living, they must work until they are too tired to stand. Most parents are unwilling to allow their children to take time to go to school. Even if they were willing, many villages do not have a school for the children to attend.

Today there is some hope for the people of these lands to acquire an education. The governments are building schools and passing laws that require the children to attend them. Teachers are being trained so that both children and adults can learn to read and write. More and more farmers are attending school at night, when their day's work is ended. However, it will be a long time before enough schools can be provided.

Health Problems. There are not enough doctors to take care of the sick in the Arid Lands, even if people could pay the doctor's fee. In some villages in the northern Sahara half the people are blind or almost blind. Other diseases are also widespread. Nine out of ten people may be sick with malaria or snail fever. These diseases are carried by mosquitoes and snails that breed in the irrigation ditches. Disease, poor sanitation, and hunger are so common that one out of every four babies dies.



Arab children in a refugee camp gather around their schoolmaster. (United Nations)



Help from overseas is ensuring steady progress in health care for the desert peoples. (center left, A.I.D.; center right, Arabian American Oil Company; bottom, A.I.D.)

Land Problems in the Arid Countries. The countries of this region are agricultural countries. Most of their people till the soil for their livelihood. In the overcrowded Nile Delta, every tiny scrap of land is worked to the full. In most places farmers have plots of land that are too small for farm machinery even if they were able to afford it. In other places the farmers do not own their land. They work it for a landlord to whom they pay high rent or a large part of their crops. All farmers toil at backbreaking work without feeling sure that their families will be supported on a level that human dignity demands. The future holds many problems for these people.

Let us stand beside a typical farmer. All day long he has pulled his wooden hoe over his little farm of less than an acre. The seed he plants has been saved from last year's crop. Because he badly needs the crop, he can never let the ground lie fallow. Thus the soil grows poorer each year. He has no ready money to buy the fertilizer that would increase his yield.

This farmer would like to have the food, clothing, recreation, and health care that are to be found in some parts of the world. He cannot be content since he has learned about the better lives of farmers in other lands. He wants a solution for his problem. He may decide that his government should help him. If his government will not do it, he may listen to those who suggest that the government should be overthrown. Communists take advantage of such conditions by urging people to use violent means to obtain what they want. The democratic nations have an obligation to help the peoples of backward countries. If they do not, these peoples may be tempted to turn to communism as a solution to their problems.

Land Reform. Seeking to help the workers, some people suggest land reform. They sometimes mean that land should be taken from the rich landholders and given to the poor farmers.

Iran is one arid country where something has been done about land reform. The Shah of Iran has given away his own farm lands for very small sums that can be paid over a long period of time. He wants to be sure that the right people get this good farm land. Each one who applies for land must show that he knows how to farm well and will take care of the land. It is important that the soil be treated as a valuable possession so that it will produce more and better crops.

The Shah knows that the very poor Iranian people will be much better off if they have the self-respect that comes from ownership of their own land and success in using it. They will then be better citizens. Though the Shah has been so generous, there are still many hundreds of thousands of poor, landless people in Iran.

This happy man has just been given the deed making him the owner of a piece of land. The land reform program enables Middle East farmers to own the land they have worked for many years. (A.I.D.)





Desert farmers want to learn how to get the most out of their land. Foreign experts are teaching them how to improve crops, find water, and drain swamps. (A.I.D.)

Many of them must be educated before they can farm the land properly. They are afraid that if they change their old methods the new ways may not succeed. It takes a long time and much patience to bring about changes in age-old ways of living.

In Egypt, the government has taken the land of those few men who owned most of the best Nile farms. This land has been sold cheaply to small farmers, who have several years to pay for it. However, Egypt's population is increasing so fast that there is not enough land for all who want to be farmers. Work of another kind must be found for many who are willing to work at other occupations.





The governments of the desert lands are making laws to control child labor. Now most children go to school for at least part of each day.
(Nadelmann from Shostal)

Other countries are trying to help these poor countries. The United States has given some of its great wealth to provide doctors, nurses, and other workers. The United Nations, too, is working very hard to raise the standard of living by showing the people how to grow better crops with better seed and tools. It is helping many people to become better educated so that they themselves may improve the conditions under which they live. The United Nations helps needy governments to build hospitals, power dams, highways, and schools.

Changing Conditions. In the Sahara, Catholic priests and brothers, and even some nuns, are now working for the conversion to the Catholic Faith of both nomads and oasis dwellers. Their work is difficult, and it may take them many years to win the confidence of the people who are slow to change their ways. But desert life is changing.

Many nomad children are now getting a better education than they had in their wandering tribal life. Oasis boarding schools have been established by the missions. In these schools, Muslim children of the Sahara are learning to provide a better life for themselves and their families. In Arabia, schools are being set up by the government.

Newspaper circulation has been steadily growing in towns and cities since people have learned to read. (Arab Information Center)



The men who work for oil companies are happy to have steady jobs. (Arabian American Oil Company)





Oil has brought great wealth to the desert and is changing the way of life.
(Arabian American Oil Company)

The development of Arabia's vast oil fields has brought large amounts of money to the countries on this peninsula. Many Arabians are becoming mechanics, drivers, and oil workers. As new wells are drilled, the number of desert settlements is increasing.

There are other signs that show that the old way of life is changing. Desert dwellers now often own radios, telephones, mechanized pumps, and refrigerators. In some of the oil towns in the Arabian Desert we find costly air-conditioned homes. Specially constructed cars and trucks now skim over rocky and sandy desert to bring men, materials, and ideas to places never before inhabited. The journey from the Persian Gulf to Riyadh, which once took 90 hours, now takes nine hours by the streamlined train put into operation in 1951.

Countries of the Arid Lands

The great belt of arid land that stretches across Africa into Southwest Asia is shared by many nations. If you examine the map on page 42 you will see that many of the national boundaries are straight lines. The reason for this is that nations such as Libya, Egypt, and Saudi Arabia cover immense areas of the desert. Their boundaries usually have been drawn by men through uninhabited regions, instead of following natural divisions, such as rivers.

The desert countries are alike in a number of ways. For the most part they have little rainfall, scanty vegetation, and large uninhabited areas. In most of these desert countries, the people live on scattered oases where they can find water for their crops. Some countries, such as Egypt, have life-giving rivers which support millions of oasis dwellers along their banks. These fertile river regions are the true heart of the Arid Lands.

Throughout the desert lands, the way of life and the problems of the people are very much the same. Egypt, Libya, and Saudi Arabia share a number of problems as nations. Problems of supplying water for farming and caring for herds in arid areas must be solved in all of them.

Wide barges and sail boats are still used to carry goods up and down the Nile River. (Arab Information Center)





The many miles of desert make transportation and communication difficult. Very few desert nations have been wealthy enough to build roads or railroads across the deserts. Some roads have been built by the European nations that until very recently controlled the desert areas. Because there are few roads, rivers such as the Nile, the Tigris, and the Euphrates are the important highways of transportation.

The peoples of the Arid Lands are nearly all Muslims. They speak similar languages based on Arabic. They have a similar cultural heritage. These things provide a basis for cooperation and friendship.

Most of the nations of the desert lands were controlled by powerful foreign governments for many years and have only recently gained independence. Many of them have methods of government different from ours. Some are kingdoms, with the king leading the rulers of the numerous desert tribes. Others are controlled by military governments.

Every Muslim tries to visit the holy city of Mecca at least once. On his return home he paints on the outside walls of his home pictures of things he saw on his pilgrimage. (A. Williams from Shostal)

ARID COUNTRIES OF NORTH AFRICA

Libya. Libya is a huge desert country lying west of Egypt. Libya became an independent kingdom in 1951, after thousands of years of rule by foreign powers. From the early years of the twentieth century, Italy had ruled this land. The native people of Libya are of either Arab or Berber origin. Although the Berbers adopted the Arabic language and became Muslims, Libya never became unified.

Libya has three provinces, Tripolitania, Cyrenaica, and Fezzan. Although the country is ruled by one king, the provinces form one nation in name only. Tripolitania and Cyrenaica have vied with each other for centuries. Each would like to lead the other. Because it is difficult to keep the balance between rival groups of people, Libya has two capitals. The royal court moves from Tripoli to Benghazi every two years.

A Berber storyteller has many listeners. He is playing a musical instrument and acting out his story. (M. & E. Bernheim from *Rapho-Guillumette*)



Libya is a little larger than Alaska. With slightly more than a million people, its population density is less than two persons per square mile. This is one of the lowest population densities in the world. Look at the map on page 14. You can see that most of the people of this country have settled in the narrow coastal strip and the highlands behind it. Over 90 per cent of the country is desert. There is no river or lake in this immense land. In the interior of Libya, underground water is available in only a few scattered oases.

The northern rim of Libya has more winter rainfall than is found in most desert countries. People in this region are able to grow wheat, barley, olives, dates, and figs. But even here they need underground water in addition to the rain. Unfortunately, the underground water table is falling in Tripolitania. This is because trees planted in reforestation programs are using so much water. Thus the number of trees that can be planted must be limited.

Libya is a typical desert country. Water is very precious. Agricultural land must be developed by the use of modern methods of irrigation and soil conservation. The famous Libyan *ghibli*, the hot, dry, sand-laden south wind, makes the region even drier and raises January temperatures to over 100° F.

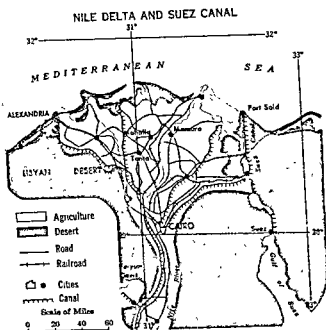
Libyan farm experts are teaching farmers to plant barley in rows. Previously farmers used the old method of *broadcast seeding*. In broadcast seeding, the seed is thrown into the air. The plants grow wherever the seed is blown by the wind.

Farmers are also learning to use better methods of irrigation. They now dig furrows and channel the irrigation water into the furrows, instead of flooding the whole surface of the fields. In areas of Libya where this is being done, potato yields have doubled.

Libya is one of the poorest countries in the world. If the total earnings of all Libyans were distributed equally, each person would receive only \$35 a year. A new source of income, however, is within reach of the several thousand Bedouins who are now working for the oil companies. Each one may earn ten times the national average.

Health standards in Libya are very low. It is estimated that 95 per cent of the people have the blinding disease of trachoma. Trachoma is spread by dirty conditions and unsanitary habits that increase risk of infection. Until recently three out of ten babies died before they were a year old for want of proper care and nourishment.

In recent years, improved health care and sanitation have resulted in a rapid increase in population. Libya must now solve the problem of providing farm land for her people. Only one fifth



of the people are true nomads. The oases, only seven per cent of the land, support the greater part of the population.

In some areas, the blowing sands of the sand desert have invaded Libyan farm lands at a rate of 30 miles a year. Experiments are being carried out to protect the land. One experiment is the planting of thatch grass. Thatch grass is planted in rows that divide the land into squares. This holds the sand and prevents it from being blown over good farm land.

Although several towns, such as Benghazi and Tobruk, are on the coast, Libya does not have large ports. Her population, though increasing, is still small and her production of goods is not developed. Without goods to trade, there is no reason to develop harbors.

The Arabs, with their primitive farm methods and ignorance of scientific farming, failed to develop their agriculture. When the Italians were in power, they tried to develop farms and fruit orchards along the coast of Libya. Since Libya has become independent, only a few Italians remain, but a few of the more progressive Libyans are trying to make the farms and citrus groves started by the Italians into profitable enterprises.

Until recently, there was little hope that Libya could remain an independent country. No mineral resources had been found. Agriculture was primitive and difficult. Illiteracy was as high as 95 per cent, and the people had no experience in self-government. At the time of independence in 1951, only 5,000 citizens had completed five years of school. Only 14 in the whole country had

graduated from college. There were no skilled workers for industry. Since 1951, the United Nations has helped Libya to make advances in agriculture, irrigation, health, and education.

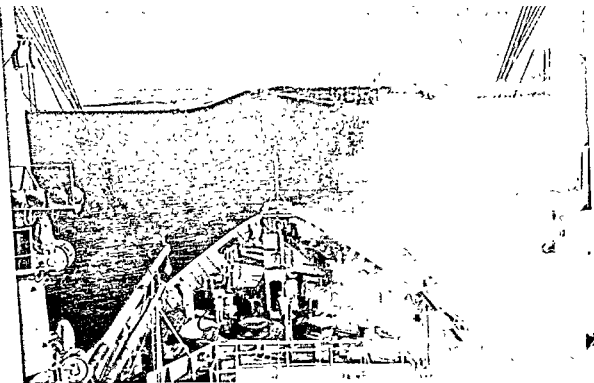
The recent discovery of oil has provided the greatest hope for Libya's future. Because Libya is poor, the development of this resource requires investment from other countries. Even one 60-ton truck riding over the cutting rocks and deep sands of the



Libyan farmers are trying to turn the sand dunes into farm land. First grass is planted to hold the sand. If the grass takes root, trees will be planted in each sandy patch. (A.I.D.)

Morocco has 85,000 acres of prosperous citrus fruit groves. (French Embassy Press & Information Division)





The boat in the forefront is about to enter the Suez Canal on its way north to the Mediterranean Sea. (D. Brown from Shostal)

desert chews up thousands of dollars worth of tires a year. But the Libyans are proud and independent people. Because they have been dominated by other nations in the past, they are now reluctant to accept money from abroad even for projects which would bring advantages to their land.

Egypt. The history of Egypt as a nation is one of the longest in the world, but the Egyptians, too, were ruled by other nations for centuries. Egypt regained full independence in the 1940's. Shortly afterward, the king of Egypt was driven out by the people and was replaced by a president. Today President Gamal Abdel Nasser is one of the most important Arab leaders. His ambition is to unite all Arabs under one government.

Nasser led in the formation of the United Arab Republic, a union between Egypt and Syria. Today this union has split apart because Syria feared domination by Egypt. By studying the map, you can understand some of the reasons why two states separated from each other by several other countries should find it difficult to become a single nation.

Several things make Egypt one of the most important nations in the arid region. For one thing, it possesses the most important oasis, the valley of the Nile River. Second, and of even greater importance, is Egypt's position across the bridgeland between Asia and Africa. This gives the country control of the Suez Canal, one of the world's most vital waterways.

Using the Nile. Almost all the farm land of Egypt depends upon irrigation from the Nile. Until 1902, the farmers used an ancient system of irrigation. A checkerboard pattern of dikes channeled the flood waters of the Nile to the land. The soil soaked up enough water to nourish the one yearly crop. In years of unusually low floods, the higher fields went dry and no crops could be grown.

In the south at Aswan, a great dam was built in 1902 to control the seasonal flow of the Nile. This enables the dwellers on the oases downstream to have a steadier supply of water. In the flood season, the dam holds back the great volume of water that used to cover the fields downstream. An even larger dam will soon be completed at Aswan.

Since the Aswan dam has been built, only enough water to fill irrigation ditches is allowed to flow. One hundred and eighty sluices are opened and closed as needed under this system. Water is available all year. The farmers' fields are no longer flooded but are watered from little canals that honeycomb the valley. Because the climate is warm, crops can be grown throughout the year. It is not unusual to have three crops a year.

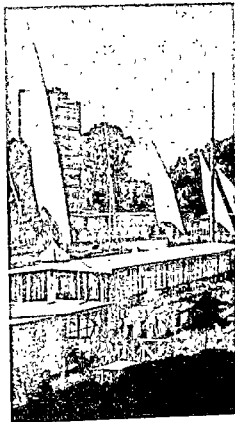
The new system of irrigation does, however, have certain problems. There is danger now that the soil is becoming less fertile, since it no longer receives the silt which renews the plant food. The use of fertilizers is too expensive for most of the farmers.

A Trip Down the Nile. A journey from Aswan in Upper Egypt to Cairo at the head of the Nile Delta can be made by boat, but a plane trip gives a more complete view. As you fly over the river, the strip of green gardens and farms on either side of the river reminds you of the importance of water in this arid land. There are many villages on the higher ground. The river valley floor is about 10 to 15 miles wide. At its outer edge a high embankment rises sharply to a plateau. Away from the life-giving water of the Nile, no trace of green appears. An endless dry, yellow-red desert stretches away into the distance.

Along the river, boats called *feluccas* carry cargoes of wheat and cotton. Since ancient times, these colorful, flat-bottomed boats with wide sails tapering to a point at the top have sailed the Nile. Soon they will be replaced by the faster modern tugs and motor barges.

The population on the long oasis formed by the Nile River becomes more dense near the delta. Near Cairo, the valley ends in a broad stretch of lowland covered with alluvium. You will remember that alluvium is soil deposited by flowing water.

As the Nile cuts its path to the Mediterranean Sea, it separates into a number of distributaries and fans out to form a triangle. Distributaries are the rivers that branch out from the main river



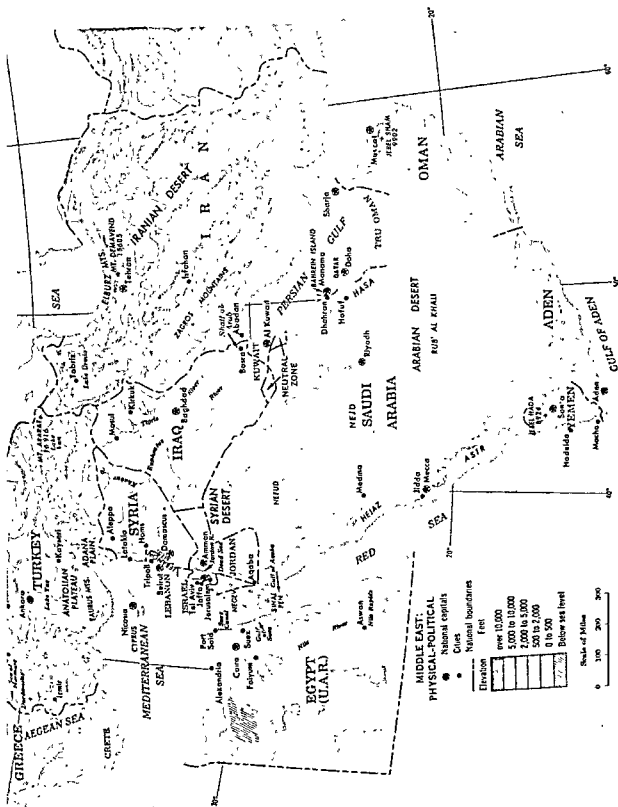
Feluccas on the Nile sail through a suburb of Cairo where pretty houseboats are moored along the river. (U.A.R. Tourist Office)



Water from the Nile is used to flood the rice fields while the plants are young. (Philip Gendreau, N.Y.)

as it flows through its delta to the sea. Several of the Nile's distributaries were quite shallow and have been filled in for farm use. The Nile Delta used to be wasteland because of the sand and salt that penetrated the soil. In the last century dams have been built across the distributaries, and irrigation has made cotton growing possible. The Nile Delta is now one of the most densely populated areas in the entire world.

The farm land of Egypt is located almost entirely along the Nile River. Nine out of ten Egyptians earn their living in jobs related to farming. Unlike Libya, Egypt exports some farm products. A very fine grade of cotton and some rice are grown for export and are sources of income for the country. Despite this, most Egyptian farmers barely support themselves and their families.



Some Egyptians make their living in other occupations. A few men and boys fish either in the Nile or in the Mediterranean. Others work in small oil fields in the Sinai Peninsula or in phosphate mines. Some find jobs in the factories, which manufacture fertilizers, textiles, cement, or glass.

Many Egyptians who live in the towns and cities find work connected with transportation. The Nile has always been an important transportation route, and many barges are used in traffic up and down the river. The seaports of Alexandria, Suez, and Port Said handle foreign trade. The Egyptian government owns most of the country's railroads. Like the highways, the railroads run along the banks of the Nile River, except in the delta or in and around the big cities. A very narrow gauge railroad runs to the western oases on tracks less than two and a half feet apart.

Future Possibilities. Many projects are planned for extending the size of the Nile oasis. Already the Aswan Dam has made 2,500,000 more acres available for crops. Increasing amounts of hydroelectric power will be available to run more factories than at present. Some of the factories are already manufacturing much needed fertilizers.

Find the oasis of Faiyum on the map on page 175. Faiyum is a 500-square-mile basin that lies below sea level. A channel has been made to connect the basin with the water of the Nile. This channel has made the Faiyum Oasis fertile enough to support 500,000 people.

The Suez Canal. The shortest route between Europe and southern and eastern Asia is through the Suez Canal. If ships could not use this canal, they would have to travel thousands of miles farther around Africa. The canal was built by a company under British, French, and Egyptian control. It stretches for over 100 miles between the Red Sea and the Mediterranean Sea. It has no locks, because the water level is the same at both ends and the land it cuts across is level. Each year more than 15,000 ships pass through the canal.

The old Suez Canal Company ran the canal under lease and paid taxes to the Egyptian government. In 1956 President Nasser ended the lease agreement and took over the canal for the Egyptian government. The British and French governments, which had controlled the finances of the Suez Canal for many years, feared that the Egyptians would not be able to operate the waterway. Actually they are operating it with great success.

Egypt's Cities. Alexandria and Cairo, the two largest cities of Egypt, deserve a close look. These great cities are centers of trade, government, and communication.



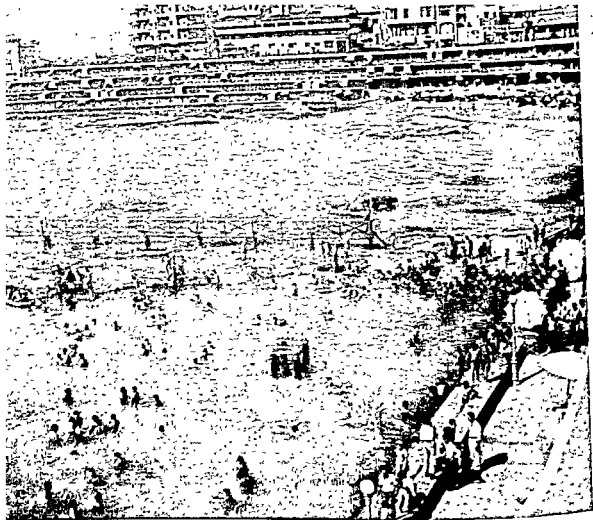
Cairo is the largest city in Africa. Not so old as some other cities of this region, Cairo owes its existence to its position at the head of the Nile Delta. The city grew up where caravans turned southward to avoid the marshy delta. Present-day Cairo is a busy city of over two million people, with an ancient and a modern section. Notice on the map on page 170 how land and water routes converge on the city. Canals have been dug to provide cheap transportation to the Mediterranean Sea and the Suez Canal. Railroads branch out in many directions.

In Cairo's old city the streets are narrow, crowded, and lined with adobe and brick buildings. The many market places offer an almost endless array of products. From the great camel market down to the tiniest shop of a leather craftsman, the needs and the luxuries of all classes of people are supplied.

Mosque after mosque is marked by a minaret piercing the skyline. The great El Azhar University, one of the oldest universities in the world, for hundreds of years taught mainly the Muslim religion. The El Azhar now has courses in Islamic law and some other general subjects. Students still come from all over the world to study the Koran there. The more modern Cairo University is attended by many thousands of men and women.

Next to the old city is bustling modern Cairo, with its sparkling new banks, office buildings, government quarters, hotels, department stores, and modern houses. Down at the waterfront, barges and feluccas unload their wares onto ships that will travel by canal to the Suez Canal or the Mediterranean. Bales of raw cotton or bolts of cotton textiles are loaded onto railroad cars. Old and new meet in Cairo as they do throughout the Arab world. On a hot day, the water boy threads his way across a street crowded with modern automobiles to sell water to the thirsty drivers. His glass of water costs one penny, compared with a dime for a bottle of pop from the stand at the street corner.

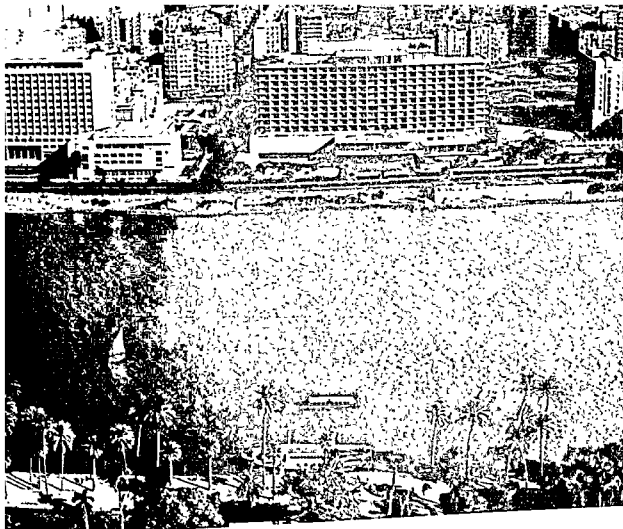
Cotton plantations take up more than one fifth of all cultivated land in Egypt. The making of cotton textiles is the country's largest manufacturing industry. (*Chapelle from MonAmeyer*)



Alexandria's public beaches, like beaches everywhere, are crowded on a summer day. (Peterson from Rapho-Guillumette)

Cairo's airport is large and very busy. Planes of international airlines stop here on their way from Europe to Asia or to other large cities in Africa. Egypt's own airlines are increasing in importance for travel across the desert.

Alexandria was founded long before the time of Christ by the famous Greek conqueror, Alexander the Great. For centuries it was the most important center of learning in the world. Today Alexandria is Egypt's largest port on the Mediterranean. Great ships dock in the city's fine harbor on their way to the Suez Canal or to the Atlantic Ocean. The people of Alexandria earn their livelihood through shipping and commerce. Alexandria is also a very important vacation resort for Egyptians from inland towns and cities. It has many large hotels, a five-mile promenade along the sea front, and beautiful sandy beaches.



Cairo, the capital of Egypt, has its largest modern hotels along the Nile.
(Holton from Photo Researchers)

STATES OF THE MIDDLE EAST

Saudi Arabia. Most of the Arabian Peninsula is occupied by a country nearly three times the size of Texas. Saudi Arabia is one of the many states established in the Middle East during the twentieth century. It is the original home of the Arabs who spread throughout northern Africa and southwest Asia.

As you can see from any map, the boundaries of Saudi Arabia are not clearly defined, because the nations of the peninsula have never agreed on them. Saudi Arabia has four main regions: the Nejd, the Hejaz, Asir, and Hasa. At one time these were separate provinces called sheikdoms because they were ruled by tribal leaders called sheiks. Gradually they were brought under one ruler, King Ibn Saud, who gave his name to the whole country. When Ibn Saud died, his son inherited the throne.

The high plateau, or the Nejd, is the heart of the peninsula. A string of fertile oases runs from northwest to southeast. Riyadh, one capital of Saudi Arabia, is located in this group of oases.

The coastal plain bordering the Red Sea, known as the Hejaz, or barrier, is hemmed in by mountains that rise to nearly 8,000 feet. Mecca, Medina, and Jidda are the chief cities on this plain.

Farther to the south, near Yemen, is the third region, Asir. Asir is the nation's best agricultural area. The fourth region is the oil-rich province known as Hasa, near the Persian Gulf.

Saudi Arabia has two capitals: the holy city of Mecca, to which only Muslims are admitted; and Riyadh, where the king holds his court. The king handles every function of government, with the help of a few ministers who are mostly members of the royal family. The people do not elect the officials.

To a large extent, methods of government still follow ancient ways. The only legal courts are religious courts, which judge by the strict Muslim law. For example, if a man is proven guilty of theft he is sentenced to have his hand chopped off. Slavery is permitted, and a government-licensed slave market exists. The United Nations has protested, but slavery is still practiced. In fact, it is said to be increasing as some Saudis become richer from oil revenues.

All good Muslims try to visit Mecca, the birthplace of Mohammed. Many hundreds of thousands make the pilgrimage each year. Until oil was discovered, almost the only source of income to the people of this vast desert country was the revenue from pilgrims.

This rocky desert lies in Jordan at the northern end of the Hejaz. The rock formation may remind you of some of our southwestern states. (Hurley from Rapho-Guillumette)

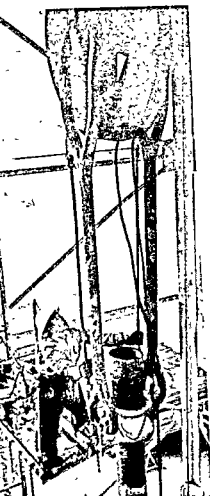




Jidda, a port on the Red Sea, is almost surrounded by desert. (*Arabian American Oil Company*)

The Ka'ba, the large black stone in the center of the picture, is the holy shrine of the Muslims in Mecca. (*Arabian American Oil Company*)





Many Saudi Arabians are being trained to be mechanics and engineers. (Philip Gendreau, N.Y.)

There are many small centers of agriculture in this land of springs and wells. The government maintains a very large model farm, which supplies food for the more than 10,000 members of the king's household. Many modern machines are used there.

Hofuf is the largest city on the largest oasis of Saudi Arabia. Hofuf's two million date palms and its great springs have made it famous. Around the city cluster about forty villages, with a total oasis population of over 200,000.

In contrast with the oasis towns, the oil towns of Saudi Arabia look just like small towns in North America. They were built for the Saudi workers by the American oil companies which developed the oil deposits.

As far as religion is concerned, Saudi Arabia is one of the most unified nations in the world. The people are nearly all Muslims. Jews are not allowed in the country at all, and the government also prohibits Catholic priests and Protestant ministers. The Catholic priest who travels weekly to Jidda to say Mass is required to enter the city with a permit as a teacher, not as a priest. Christians are not permitted under any circumstances to enter the Muslim's holy city of Mecca. A Christian who does so risks his life. Foreigners are allowed to live only in Jidda, the former capital, and in the oil towns.

There is a great need for education in Saudi Arabia. A few years ago there were only ten or twelve high school graduates in the entire country. There is no daily newspaper in the whole of Saudi Arabia. There is a shortage of people trained to use medical and other modern equipment. The government building in Riyadh is large and beautiful, but only a few rooms are used because there are so few people to do the clerical work. This is gradually being corrected, but it will take time. Other Arab countries have been helping by sending trained teachers on loan to Saudi Arabia to establish more schools.

Oil brings enormous royalties into the national treasury. The oil companies that operate here train the Saudi in the skills, crafts, and duties needed in the oil industry. The company officials select talented Saudi, even from among those who have spent most of their lives roaming the desert as nomadic herders. These people are sent to Lebanon and Syria for an education. The educated men come back to take their places with the foreign oilmen in many different jobs.

Saudi Arabia faces serious health problems. Tuberculosis is widespread. Over 70 per cent of the people suffer from trachoma.

The poverty of the masses contrasts greatly with the extreme luxury in which the king and his family and huge court live. He has many palaces, one of which cost nearly \$50,000,000. It is



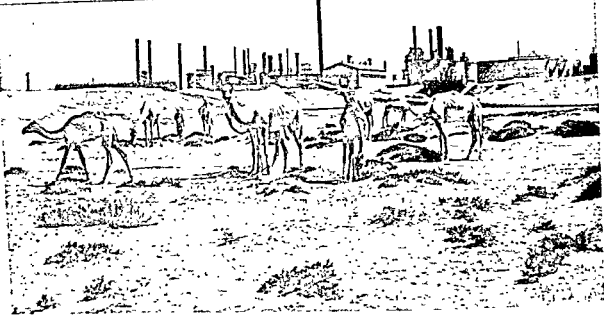
located in Riyadh which, until recently, was only a small mud village. Since communications with the outside world have improved and the people have begun to be educated, they feel they should have a chance to share the nation's wealth.

Yemen. The small country of Yemen is difficult to reach overland because of the Arabian Desert. Although Yemen has a sea-coast facing the Red Sea, it is still one of the least visited countries in the desert realm. Yemen's people and their government object to allowing foreigners to settle in their country. Now and then they may admit foreign technicians to the country to search for minerals or oil, but they allow them to remain only as long as their work requires.

Unlike most desert countries, Yemen has been able to support its population rather well by agriculture. It has even established an export trade in some products. Since there is some rainfall each summer, Yemeni farmers can grow crops such as barley, sorghum, and coffee. Coffee is the country's chief export crop. Yemeni coffee is known as *mocha* because of the seaport through which it is exported.

In ancient times, Yemen had skyscraper buildings that reached as high as twenty stories. The Yemenis claim the oldest dam in the world built for irrigation. The dam still exists, although it is not used today because the water supply has dried up. Yemeni men wear traditional Arab dress, but include a curved dagger or sword

San'a, the capital of Yemen, is a busy walled city of over 80,000 people. (Von Meuss from Photo Researchers)



Oil refineries have changed the landscape in Bahrain. (Monkmeyer)

in their belts. Old Yemeni daggers are treasured by their owners and handed down from father to son. These daggers date back to the centuries before Christ, when armor from Yemen was considered the finest in the world.

As in many other Arab countries, the standard of education is extremely low. While Israel was still a new state, its government invited many Jews living in Yemen to return to the Jewish fatherland. But the way of life of the Yemenis was so primitive that they were unable to adapt to the highly developed life of the newly formed state. Eventually many of them returned to Yemen.

Coastal Sheikdoms and Protectorates. A number of small states are grouped around the southern and eastern coasts of the Arabian Peninsula. Some of these are headed by sheiks, others by sultans. Most of the states are tied to Britain by trade or military agreements, so that they are under the protection of the British.

Aden is an area just east of Yemen that is partly a British colony and partly a British protectorate. The colony is an extremely small one of only 80 square miles, but it is very important since it includes the port of Aden and is a fueling center for ships. Aden has one of the largest oil refineries in the world. It is also the center of trade for East Africa and Arabia. The larger part of Aden that is under British protection is broken up into small sheikdoms. The interior of the country is almost completely barren, with only a few nomadic shepherds and goatherds.

Oman is another small sultanate under British protection. It covers a narrow stretch of land along the southeastern side of Arabia. There are some mountains in Oman which receive a small amount of rainfall. The country exports many dates and produces fine camels. Mail reaches Oman only once a week, and practically all travel is done on animals.

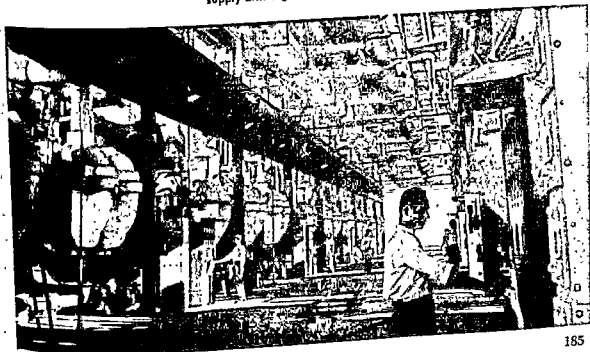
Between Arabia and Iran, the Persian Gulf extends far into the land. Along this gulf coast of Arabia, some small island sheikhdoms have been under British protection for over a century. These places are among the poorest parts of the Middle East. Except where oil has been discovered they have small populations. The islands used to be the center of a pearl fishing industry, which still brings in some revenue and supports a few workers.

Oil has made the island city of Bahrein prosperous and has started the search for oil in other parts of the Persian Gulf. Under British guidance, the people of Bahrein have elected representatives to their city government.

The tiny sheikhdom of Kuwait, at the northwest of the Persian Gulf, is the most fortunate of all the Gulf countries. It includes within its borders the greatest single oil field known in the world. Both American and British oil companies are active in Kuwait, although it is no longer officially under the protection of Britain. The ruler receives over 400 million dollars a year as the country's share of the profits made by the foreign oil companies.

Following a policy introduced by the oil companies, the sheik spends large sums of money to improve the living conditions of his people. Kuwait now has some of the most modern schools, hospitals, and homes in the world. School children even get free meals, free clothing, and pocket money.

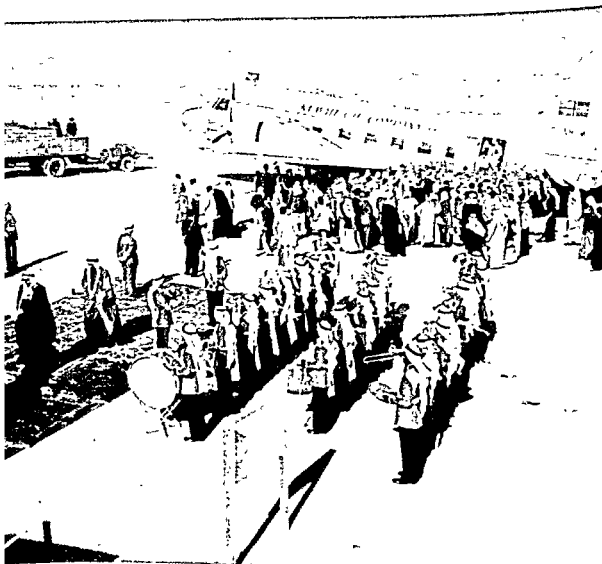
Only a country with Kuwait's wealth could afford to distill seawater to supply drinking water. (Monkmeyer)

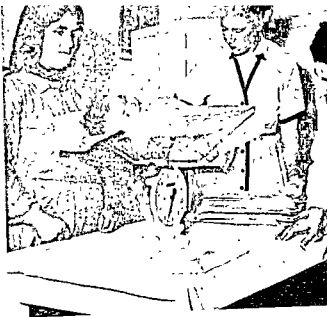


All of this has happened since 1945. Until then the Kuwaitis made a living by fishing for pearls or by making *dhow*s, the Arab boats that trade on the Persian Gulf. In a few years Kuwait's people have progressed from poverty to a standard of living that compares with that of the United States. No one who is willing to work is without a job.

Kuwait's new wealth has not made all the people happy. They have no political freedom. No one can make laws except the sheik. He alone can spend oil revenues that pour into Kuwait. Still, he does not spend it on himself as some wealthy rulers do. Less fortunate Arab countries such as Jordan and Egypt are jealous of this wealth.

The ruler of Kuwait is given a warm welcome on arrival at the airport. (Charbonnier from Photo Researchers)



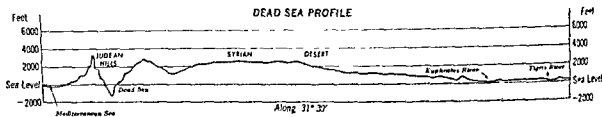


Teachers, doctors, and nurses have come from other Arab countries and from the United States to teach and train the Jordanians. (United Nations)

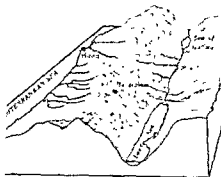
Jordan. Jordan became an independent kingdom in 1946. At the end of the Arab-Israeli war in 1948, Jordan also took over the Arab parts of Palestine. The war added a large number of Arab refugees to the population of Jordan, a country with few resources. Like their Saudi-Arabian neighbors, most Jordanians are poor and illiterate. About 100,000 Jordanians are Bedouins who support themselves by nomadic herding. The Bedouins are fiercely loyal to their young King Hussein, but other groups have tried to overthrow him.

Many Jordanians in the western part of the country are farmers. But some of the arable land there is not being used. The government is encouraging more Jordanians to use this land. They are trying to bring irrigation water from the Jordan River and its tributary, the Yarmuk. On the map, neither of these rivers appears very large or important, but each is vital to the desert country of Jordan. Jordan, Syria, and Israel all claimed a right to use this river water, and there were many quarrels over it. The three governments still have not reached a lasting agreement about sharing the water.

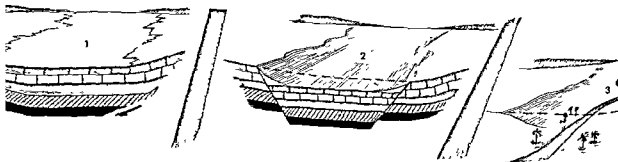
Transportation in Jordan is very limited. There are a few asphalt roads, some desert trails, and 225 miles of narrow gauge railroad. Jordan has a single seaport, Aqaba, but the transportation to this port from the rest of the country is poor. There are only small local airports at Amman, the capital, and Jerusalem, through which the Israeli-Jordanian border passes. The nearest international airport is at Beirut in Lebanon.



The valley of the Jordan River is part of the Great Rift Valley.



A rift valley is formed over a period of many thousands of years. First (1) the earth cracks. Then (2) the land between the cracks begins to sink. Finally (3) the rift valley develops.



Jordan has one unusual resource. The country includes many places made sacred by events recorded in the Bible. Bethlehem lies within Jordan, and the country also controls part of the holy city of Jerusalem. Tourists from all over the world travel to these holy places. Some Muslims also travel to Jerusalem, which is a holy city for them as well as for Christians and Jews. Jordan therefore derives some income from tourism.

For Christians, the most beloved place of pilgrimage in the old city of Jerusalem is the Via Dolorosa. This is the way our Lord walked in His Passion. The Church of the Holy Sepulchre now stands over His tomb and over Calvary, the place where He was crucified. Catholic, Orthodox, and Protestant Christians all have shrines in this basilica. In this section of Jerusalem there is also a famous Muslim shrine, the Dome of the Rock. Nearby is the Wailing Wall, said to be the only portion of the great wall around Solomon's Temple left standing by the Romans. The fact that the site of the temple is in the Muslim quarter of the city, across a national boundary in the Arab country of Jordan, and is therefore closed to them, is a great sorrow for faithful Jews.

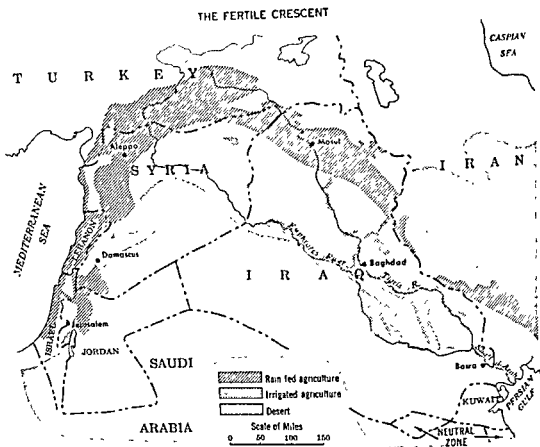
Jordan's Rift Valley. One of the most interesting landforms in the world is found in Jordan and neighboring Israel. Many millions of years ago when the earth was forming, a great crack, or fault, appeared in the earth's crust. The Great Rift, as the fault is called, stretches along the border between Jordan and Israel to the Gulf of Aqaba and the Red Sea. It is possible to trace it again to the lakes in which the Nile has its source, and even farther south in Africa. The Jordan River flows southward very rapidly through this great trench and empties into the Dead Sea.



(Above) The Jordan River and its tributaries provide water to irrigate the dry lands of Jordan and Israel. (Kluger from Monkmeier)



(Right) A stream emptying into the Dead Sea makes its own delta. (Jordan Consulate, N.Y.)



The Dead Sea is 1,295 feet below sea level and is nearly 1,200 feet deep. It has filled up with all the salts left by the evaporation of the water in this warm land. It is impossible for anyone to sink in this sea because the extremely salty water is so buoyant. The salt is a valuable mineral resource for both Jordan and Israel.

The Fertile Crescent. Most Jordanians live in villages clustered around wells near the Jordan River. This region is part of a great crescent-shaped area called the Fertile Crescent. It is called this because the soil is fertile and rainfall is more plentiful than in the surrounding regions. On the map on this page, the Fertile Crescent is the area marked as rain-fed agriculture. Except for Egypt, the great civilizations of this area have risen and fallen in the area included by the Fertile Crescent and the nearby irrigated lands of the Tigris-Euphrates.

Syria. Syria's position on the Fertile Crescent has made its standard of living higher than that of some of its neighbors. The section of the Fertile Crescent included in Syria is the main source of the country's agricultural produce. Since Syria has no mineral resources or timber, its chief resource is its land. Its population

is not large, and there is more land available for each farmer than in some of the neighboring countries.

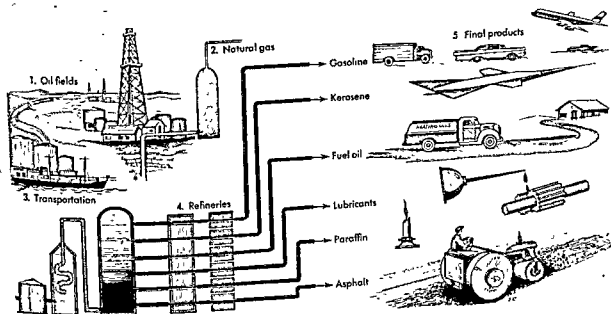
In the past Syria was known as a grain center. Today it still produces cereal grains in the north and west and along the Euphrates and Khabur rivers. The desert and steppe regions of the country support nomadic herdsmen, but the government is trying to persuade these nomads to establish permanent homes. Irrigation is common in Syria, ranging from ancient waterwheels to the most modern equipment.

The cities in Syria today are mainly trading centers for the farming districts. They have long and interesting histories. Damascus was founded about 2,000 years before the birth of Christ. Its history includes visits by St. Paul, and a period when it was a center for Crusader armies in the Middle Ages.

Some Syrian cities are developing industries. The city of Homs has a refinery for sugar, much of which is grown in the country. Aleppo, the second largest city, is a center for cotton textiles. The cotton for Aleppo's textile mills is grown on irrigated land.

Syria's seaport is Latakia. Syrians hope to make Latakia a center for Arab trade on the Mediterranean, as well as a major port for world trade. Oil pipelines are another form of transportation that brings money into Syria. Though Syria itself has no oil, pipelines from oil fields in Iraq cross Syria on their way to the Mediterranean. The Syrian government receives a large income from fees paid by the oil companies for use of the land for pipelines.

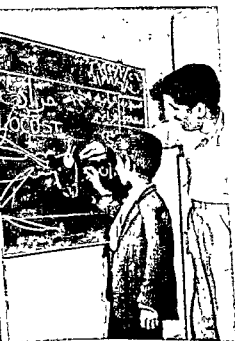
Follow on this chart the story of oil. Notice the varied uses of oil in our modern world.



Moving petroleum from an oil field and changing it into new products is a complex, difficult job.



The locust is a kind of grasshopper. Swarms of locusts can destroy all vegetation. Middle East governments have united in their fight against the locust problem. (Chapelle from Monk-meyer)



Iraq. The mountains and valleys of northern Iraq lie within the Fertile Crescent. As a result there is enough rainfall for farmers to grow high-quality fruits and vegetables. Tobacco is also becoming important in this northern region. Iraq's most important farm lands are in the center of the country, where they can be watered from the Tigris and Euphrates rivers. Baghdad, the capital, is the center of this fertile farming region. Basra, at the head of the Persian Gulf, is the port through which Iraq's farm produce is exported. Iraq's most important agricultural exports are dates, grain, wool, tobacco, cotton, and hides. Almost all manufactured goods must be imported.

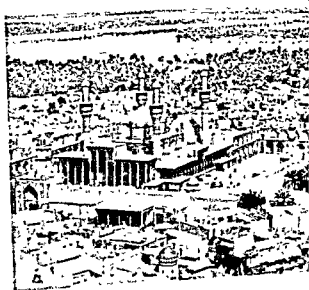
Central Iraq was at one time the granary for the whole of southwest Asia. But the land was ravaged and neglected during long wars when Iraq was part of the Turkish Empire. Now winter crops of wheat and barley and summer crops of rice and cotton are slowly being increased. Old irrigation and flood control works are being rebuilt and expanded. Unlike the floods of the Nile, the floods of the Iraqi rivers come after crops have been sown, so they can be damaging if not carefully controlled.

Iraq has been more successful in fighting locusts than have other countries of Africa and southwestern Asia. Sometimes millions of these winged insects descend upon cultivated areas. They come in clouds so thick that they block out the sunlight. They strip every blade of grass, every leaf, every petal, leaving only bare stalks and twigs behind them. Locust swarms are best controlled in their breeding places. The Iraqis have been so successful in fighting these insects that they send technicians to help other nations.

Over 80 per cent of the Iraqis are farmers or livestock breeders. The rural people have strong tribal loyalties. Since

Independence in 1932, there has been great difficulty in uniting the various tribal groups. Many Iraqis are descended from brave Arab tribes, known for their physique. In the northern mountain regions, there are nearly a million Kurds. The Kurds are a tribe of nomads who have strong tribal bonds with the Kurds in neighboring Iran and Turkey. Some Kurdish leaders want a separate Kurdish state, and this has caused trouble with the Iraqi government. Iraq is one of the few countries in the world that we can say is underpopulated. One reason is that when the state of Israel was formed, about 108,000 Jews left Iraq for Israel.

The cities of Mosul and Kirkuk dominate the rich oil fields of the north. Oil has been called Iraq's "third river." Revenues from the export of oil have been wisely used for long-range development projects. The old irrigation systems are being rebuilt, and



The Tigris River is navigable for small boats all year round at Baghdad, capital of Iraq. (Arab Information Center)

Nowhere is the contrast between old and new more striking than in Damascus, capital of Syria. (Swissair)

floods are being controlled. Revenue from oil is badly needed to renovate Baghdad. Baghdad has far too many slums. There is a great deal of poverty and there are far too few schools. In the oil towns, on the other hand, good homes are provided for the workers. Neat, clean houses, schools and playgrounds for the children, new markets and shops, hospitals and clinics are being provided.

Iraqi housing experts have been trying to eliminate slums, provide new homes, and yet preserve the tribal life of the people. It is an Iraqi custom to build houses around a little square where the people can gather to talk. The new houses are built in groups of ten to fifteen, with access to the gathering place for neighborly conversations.

Fertile soil, available water, and oil are the riches of Iraq. Transportation routes from the Mediterranean Sea to the Indian Ocean, and pipelines to the Mediterranean add to the wealth of the nation. Iraq's drawbacks are the hot climate of the lowlands, and the low rainfall everywhere except in the mountains. The Bedouin shepherds of the western desert live very much like poor desert people in other countries.

Iran. Iran is not an Arab country, although its people share with the Arabs the same religion, Islam. The Iranian people, sometimes known as Persians, have proudly maintained their independence for 25 centuries. Farsi, the language of the country, has been written in Arabic characters since Muslim missionaries came in the seventh century. However, Farsi is not closely related to the Arabic language.

The landforms of Iran are vast plateaus, mountain ranges, and salt deserts. The Zagros Mountains extend from the northwest to the eastern shore of the Persian Gulf. The Elburz Mountains, which rise to 18,000 feet, curve around to the southern end of

Skiing is a popular sport on the snow-covered slopes of the Elburz Mountains in Iran. (Gantner from Monk-meyer)



the Caspian Sea. They enclose the 4,000-foot plateau and keep rain-bearing winds from the salt-desert region to the southeast. The steppes in the northwest and northeast have enough rainfall for dry farming. The lands bordering the Caspian Sea are below sea level. They receive heavy rain and yield many subtropical products. In the rest of the country the people depend upon wells and dams for irrigation water.

Iran does not suffer from overpopulation. Its farm lands are sufficient for the present population. Irrigation projects could easily bring much more land under cultivation to provide for a larger population. The mountains used to have large forested areas, but due to lack of proper care in cutting, valuable timber has been lost. Soil erosion has set in, and the hillsides that once were covered with trees are now barren.

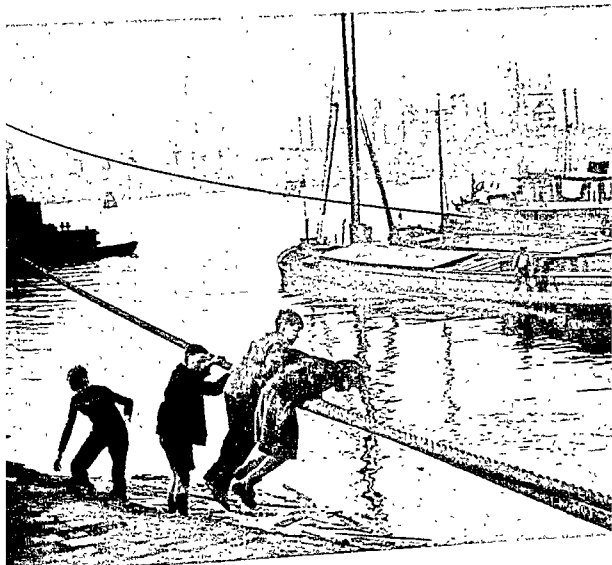
Iran's mineral resources of lead, tin, iron, coal, manganese, and chromium have as yet hardly been touched. But its large oil and water reserves are being well used. Iran today has one of the largest oil refineries in the world at Abadan. It also has industries such as sugar milling, cotton and wool spinning, textiles, cement, and food processing. Iran's famous carpets and ceramic tiles are made by craftsmen in their own homes or in tiny shops. The weavers depend upon imported wool, because wool from the sheep herded by Iranian nomads is of poor quality.

The capital of Iran is Tehran. This city has over a million people. Nestled on the plateau in the foothills of the Elburz Mountains, it is one of the largest cities in the Middle East. Tehran is continually growing. Tabriz in the northwest is the second largest city and an important trade center. Isfahan is the cultural center of the country. Isfahan is noted for the beauty of its mosques and art work.

In 1950 there was only one very inefficient post office in Tehran. It often took more than a week for a letter to reach a nearby destination. Since then the United Nations has helped the Iranian government set up a good postal system.

Iran's ruler, the Shah, recently made sweeping land reforms. He has bought land from the wealthy landowners and given it to the people. He has given millions of his own acres to very poor Iranian farmers. The Shah also decreed that factory owners must give 20 per cent of their profits to their workers.

Iran shares her borders with five other countries. On the north is the Soviet Union. Her western and eastern borders are shared with states that are now receiving help from Russia. This is a source of worry for the Iranian government, since the Soviet Union could be a serious threat to a country with such vast natural resources.



Part IV

The Land and People of Europe

Since ancient times, man has traveled along Europe's rivers to exchange goods and ideas. Many great cities have grown up along this vast transportation network.

(Cartier-Bresson/Magnum)

Europe: Its Landforms, Climates, and Soils

We have already taken a quick look at Europe and have learned about its Mediterranean Lands. Before going on to the cooler, wetter parts of Europe, let's complete our picture of the landforms, climates, and soils of this fascinating continent.

THE LANDFORMS OF EUROPE

Europe's Position. Find Europe on the world map in the front of your book. What is the latitude of Europe's northernmost tip? How does this compare with the latitude of the northern tip of Alaska? Now find the latitude of the southernmost tip of Europe and follow it westward to the United States. Does it surprise you that much of our country lies south of this parallel? No part of Europe lies as far south as Raleigh, North Carolina.

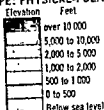
If you trace the parallel that runs through the city of London, you come to the cold northern lands of Canada. Yet you know that London does not have the harsh winters of northern Canada. Later you will find out why Europe has a mild climate, in spite of being so far north.

Look at the map of the world on page 8. Compare Europe's position with that of other land masses. You can see that Europe is a great peninsula extending from Asia, and that it almost touches Africa at its western end. Notice how small Europe seems compared to these giant continents.

Europe's Broken Coast Line. Europe is almost surrounded by water. Because of its small size and irregular shape, no point in Europe is more than 400 miles from the sea. Trace the irregular coast line from the Arctic Ocean through the Strait of Gibraltar and up to the Black Sea. If you sailed along the coast of Europe, including the British Isles, you would cover over twice the distance around the world at the equator. Even so, you would not have sailed around the many small islands that lie close to the continent.

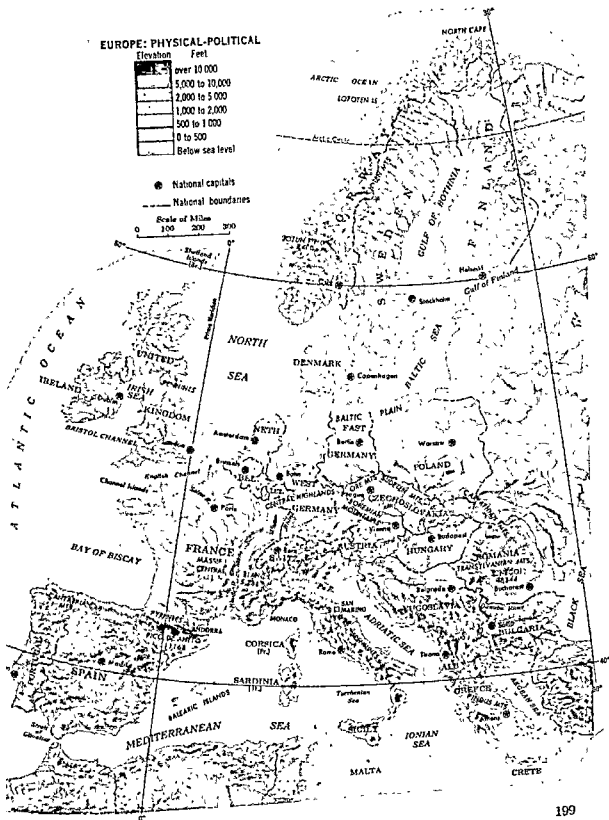
Europe is a continent of peninsulas. The Balkan and Italian peninsulas each contain smaller peninsulas. The Iberian Peninsula, with shores on the Mediterranean Sea and the Atlantic Ocean, is the most southerly peninsula in Europe. In northern Europe, the long, narrow Scandinavian Peninsula contains the countries of Norway and Sweden. The coast of this peninsula is broken up into

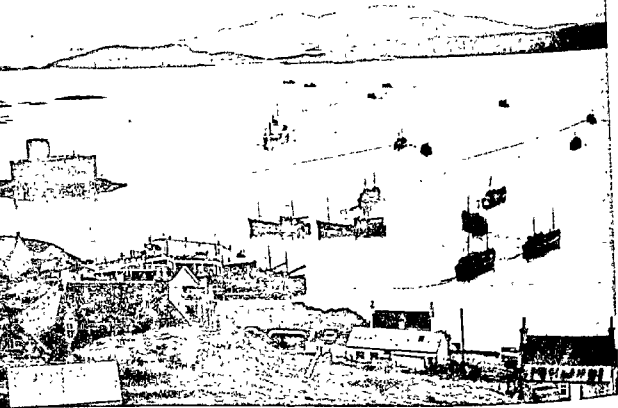
EUROPE: PHYSICAL-POLITICAL



- National capitals
- National boundaries

Scale of Miles
0 100 200 300





Easy access to the sea has greatly aided the growth of Europe. [Standard Oil Co., (N.J.)]

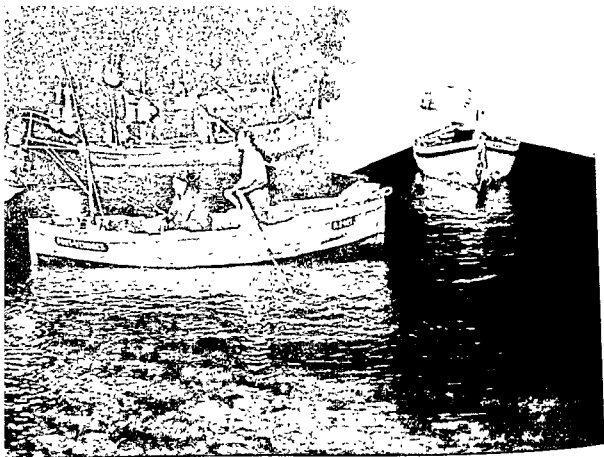
many islands and deep fiords. Just south of the Scandinavian Peninsula, the country of Denmark juts up on a narrow tongue of land fringed by large islands. A large group of islands west of the Danish Peninsula is the British Isles, which include Great Britain and Ireland. At one time Great Britain was also a peninsula, attached to Europe by a strip of land now covered by the English Channel.

The islands of Europe vary in size from Great Britain, Iceland, and Ireland to the many tiny islands that ring the coast. Locate on your map on page 199 the Shetlands, the Orkneys, and the Hebrides in the northern British Isles. The Channel Islands just north of France also belong to Britain. Now locate in the Mediterranean the Balearic Islands, Corsica, Sardinia, Sicily, Malta, Crete, and Cyprus. You will see many other islands on your map of Europe. Most of these islands belong to the countries near them.

Waterbodies of Europe. You have only to glance at a map of Europe to see that it is cut up by many seas, bays, and gulfs. These arms of the Atlantic and Mediterranean separate the peninsulas and surround the thousands of islands sprinkled along the coast.

EUROPE AND THE MEDITERRANEAN WORLD LAND TRANSPORTATION





These sardine fishermen in the North Atlantic can see their catch glowing in the dark waters. (*Barnell from Shostal*)

Since we have already studied the waters of the Mediterranean, let us work our way northward along the Atlantic coast of Europe.

First we come to the Bay of Biscay, which borders both Spain and France. East of the Bay of Biscay, we pass through the narrow English Channel between Great Britain and France. The waters between Great Britain and the Scandinavian countries are called the North Sea. South and east of the Scandinavian Peninsula is the Baltic Sea. The northern arm of the Baltic Sea is called the Gulf of Bothnia. This gulf separates the Scandinavian country of Sweden from lake-studded Finland.

Among Europe's most important assets are its rivers, which are fed by ample rains in the highlands. While rivers which empty into the tideless Mediterranean form broad deltas, the rivers which drain into the Atlantic Ocean are tidal. They have wide, funnel-shaped outlets called estuaries, which permit tidal waters to go far up the river. On your map these estuaries look like bays or gulfs extending into the land. Though five countries of Europe lie inland, they are all connected with the sea by long, navigable rivers.

Europe's rivers and its many well-protected natural harbors have made it a continent of seafarers. The waters around Europe

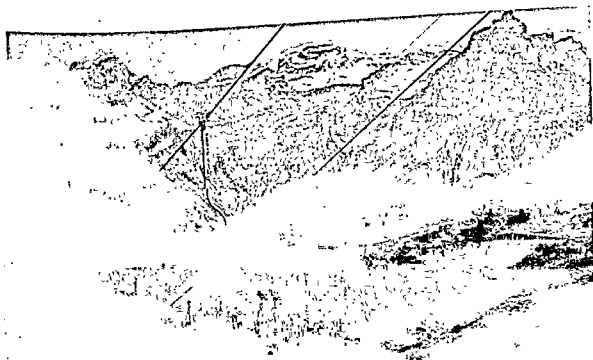
have been important throughout history as highways of trade and travel. Locate the important straits that connect the North Sea with the Baltic Sea; the North Sea with the English Channel; the Mediterranean with the Atlantic; and the Aegean Sea with the Black Sea. What countries control these important waterways?

The Mountains of Europe. Look at the physical-political map of Europe on page 109. Notice how Europe is cut up by mountains and valleys. Some of the mountains are so old and worn-down that we call them mountainous highlands.

Starting with the Pyrenees Mountains between France and Spain, you can trace a great arc of mountains stretching through the Alps to the Carpathian Mountains in eastern Europe. This long, curving chain of mountains is called the Alpine Arc. Southward from the Alpine Arc stretch the Spanish Highlands, the Apennines of Italy, and the mountains of the Balkan Peninsula. In northern Europe, a rugged backbone of high mountains straddles the Scandinavian Peninsula. A lower and less rugged mountain range runs down the west side of the island of Great Britain.

There are many high, narrow passes through which traffic must go to cross the highest parts of the mountains. Rivers flow through some of the passes, and roads or railroads have been built through

Tourists get a splendid view of the Alps with their snow-covered peaks and mountain lakes. (Swiss National Tourist Office)

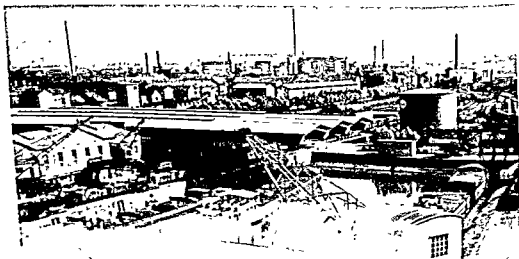


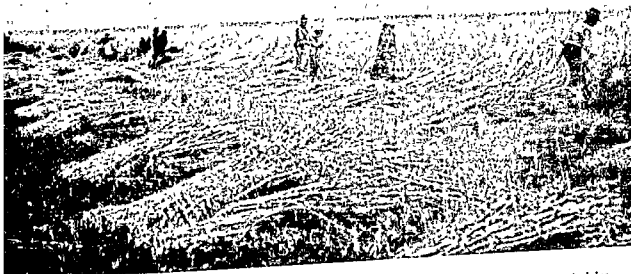
all of them. The people of Europe are very conscious of the importance of these passes. One of the famous passes is the Brenner Pass, which crosses the Italian Alps into Austria from the Po Valley, connecting Italy with Central Europe. There are many other important passes through the mountains of Europe.

The mountains have been a challenge to European engineers, who have had to find ways of bridging the steep valleys and tunneling through the mountains. If you take an automobile or train ride across the Alps today, you wind through the mountains at dizzying heights, and plunge into tunnels that bore for miles through solid rock. However you cross the mountains, it is an exciting experience.

The Plains and Rivers of Europe. Some of the traffic of Europe goes through the high mountain passes, but people avoid traveling through the mountains whenever possible. Most traffic follows the important river valleys or crosses the low plains. The valley of the Rhone and Saone rivers in France, between the Massif Central and the Alps, provides a passage from northern France to the Mediterranean. The Danube River and the Po River also form natural corridors between the mountains. The Rhine, which flows northward across Germany and the Netherlands to the North Sea, is a great water highway through the Central Highlands of Europe. The Rhone, the Danube, the Po, and the Rhine all have their sources in the Swiss Alps.

The Rhine River begins in the Swiss Alps near the busy river port of Basel. (Swiss National Tourist Office)





Elsewhere in Europe, north-flowing rivers include the Oder and the Elbe, which drain into the Baltic Sea. In western Europe, the Seine, the Loire, and the Garonne carry cargoes from the interior of France, Belgium, and the Netherlands. The Thames in England and the Shannon in Ireland carry large amounts of water traffic.

On the lowlands, Europe's rivers are linked by a vast network of canals. Even with the growth of modern highway and rail systems, canals and navigable rivers are very important, carrying ships and barges far inland.

The great plain which curves from the Pyrenees in southern France north and eastward to the Soviet Union has a dense network of roads and railroads. The much narrower coastal plain along the Mediterranean north of Barcelona is the only land route around the Pyrenees. The Hungarian Plain in southeastern Europe is hemmed in by mountains and its transportation system centers on the Danube River.

Good farm lands on the great plains of Europe provide wheat for the people of Central Europe. (Heiniger from Rapho-Guillumette)

CLIMATES AND SOILS OF EUROPE

Now that we know something of the landforms of Europe, let's take a look at two other factors that affect the ways people live in this region. These two factors are climate and soil. We know

already how climate affects the land. Soils can be eroded by heavy winds or rains. Soils can also be carried by winds from one region to another. Glaciers that formed in the periods called the Ice Age carried with them the silt and rocks that form many of the soils of Europe. Rains may rob soils of their minerals or wash them into the flood plains of rivers. Climate also affects the crops that farmers grow and whether they can farm at all. For instance, a climate that is poor for crops may be just right for herding sheep. Sometimes climate and soil combine to make perfect conditions for a forest industry on land that could be used for little else. Whenever we learn how people make their living, we must remember how much their choice of work is affected by the climate and soils of the place they live in.

A Coastal Journey. Let's take a trip from northwestern Spain to Bergen in Norway on a vessel that carries freight and passengers. On the way we shall explore the coast and stop at several ports.

Traveling north, we enter the Bay of Biscay. After a stop at La Rochelle on the French coast, we head north and west around the irregular coast of Brittany, fringed with islands. Ocean traffic is very heavy in and out of the many ports. It would take weeks to travel along this coast if we were to visit all the harbors, large and small. From the English Channel we enter the Strait of Dover. Now the islands of Great Britain and Ireland lie northwest of us.

Hugging the French coast, we pass one picturesque fishing village after another. There is not much sunshine. Overcast skies and humidity make us wish for a downpour. Rain might clear the air and give the sun a chance to come out. Our little ship steams on past Belgium and the Netherlands. We are traveling through one of the dampest regions outside the tropics. The contrast to the Mediterranean climate of southern Europe is marked. This cool, temperate climate with high humidity is called a *marine west coast* climate.

We continue northward through the North Sea along the island-studded coast of Norway. We notice that the temperature, the number of sunny days, and even the humidity have not varied much since we left the northern coast of Spain. There has been little change in the weather within the 20 degrees of latitude through which we have traveled. The captain tells us that the whole western coast of Europe has a marine west coast climate, with mild winters, cool summers, and plenty of rainfall at all seasons.

Our little vessel has been feeling the effect of strong winds blowing from the west. These winds are called westerlies. You learned last year that westerlies also sweep over the Pacific North-

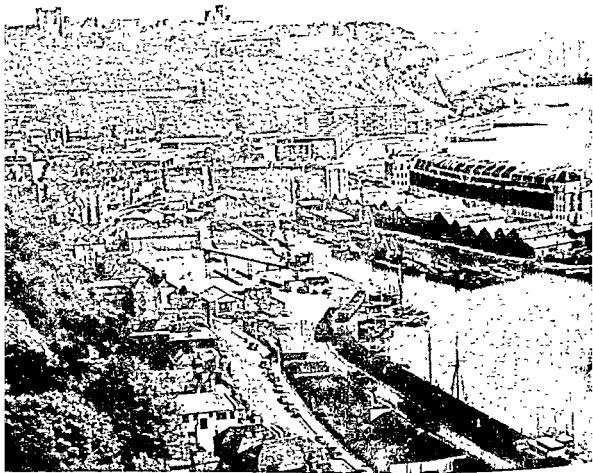


Woolens from the Scottish Highlands
are world-famous for good quality.
(Hence from Photo Researchers)

west of Anglo-America. The course of westerlies over the ocean accounts for the high humidity of the marine west coast climate. You will remember that winds blowing over the ocean do not always pick up water vapor. If winds blow over cold water, they remain dry. If they blow over warm water, they absorb evaporated water and become moist, rain-bearing winds. Since the westerlies in this region are moist, this part of the Atlantic Ocean must be rather warm. We shall see now that this is so.

The North Atlantic Drift. Beginning near the equator, a warm current of water sweeps westward across the Atlantic Ocean toward the West Indies. During its journey it is heated by the sun, which shines overhead in almost cloudless skies. Reaching the coast of South America, part of the current enters the Caribbean Sea and the Gulf of Mexico. As this warm current flows northward off the coast of Florida it is now called the Gulf Stream.

The Gulf Stream flows like a great river across the Atlantic. To a traveler looking down from an airplane, it looks like a wide blue river in the greener ocean. As it approaches Western Europe, the Gulf Stream changes its name. Now it is called the North Atlantic Drift.



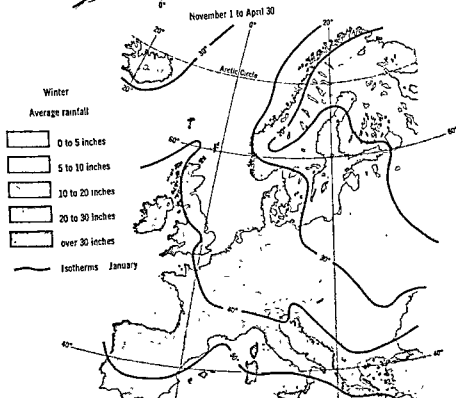
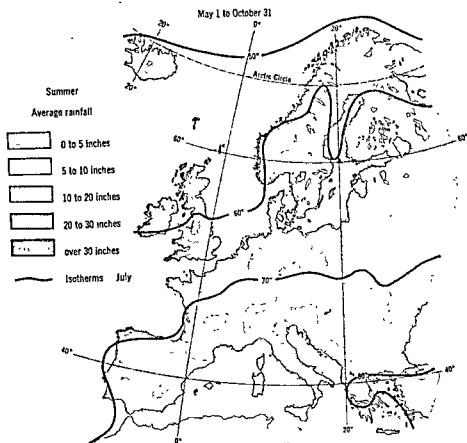
The white chalk cliffs of Dover on the English Channel are a famous landmark. (Mottar from Photo Researchers)

The North Atlantic Drift divides as it flows northeastward. The main stream continues northward around the west coast of Ireland to Norway and the Arctic Ocean. The other part flows south to Spain and Portugal. The effect of the North Atlantic Drift on the climate is felt as far south as the African coast and as far north as the northern tip of Norway.

Extent of the Marine West Coast Climate. You might wonder how far inland the marine west coast climate extends. You will remember that in the United States a similar climate exists along the Pacific northwest coast. The marine climate along our west coast is confined by high mountains to a narrow coastal strip. Look at the climate map on page 15. Notice that in Scandinavia, too, the marine climate penetrates only as far as the mountains. The warm, wet winds drop their moisture as they rise over the mountains. The west coast of Norway is one of the wettest places in Europe.

South of Norway, where there is no mountain ridge near the coast, the moist westerlies pass over the low coastal plains. There

EUROPE: RAINFALL AND TEMPERATURE





"Old Man Winter" is slow in giving way to spring. Mountain snows have not yet melted even though the lowlands are green. (Lanks from Shostal)

the marine climate extends inland until it merges with the drier continental climate. Most of France has a marine west coast type of climate, as does the northern part of Spain. Northward from Europe, the British Isles and the southern sections of Iceland also lie within the cool, moist influence of this type of climate.

The thin, misty rain of the marine west coast climate seldom becomes a downpour. Thunderstorms rarely occur. Less rain may fall in a whole week of wet days than in a single heavy thunderstorm in New York. Fogs, especially in winter, are dense and frequent. London, capital of the United Kingdom, has many foggy days in winter. Often land, water, and air traffic come to a standstill because of low visibility. In foggy weather, radar helps to protect ships and airplanes.

The precipitation in northwestern Europe varies little during the year. The temperature range, or difference between the highest and lowest temperatures, is quite small. Winter and summer temperatures seldom differ by more than 30 degrees.

Heavy frosts rarely occur. When snow does fall, the warm southwest winds melt it quickly. Summer temperatures usually average a cool 60° F., which makes for pleasant living conditions.

Effects of the Marine West Coast Climate. The farther east we travel in Europe, the greater difference we find in the seasonal amounts of rain or snow and in the range of temperature. For example, the warming influence of the North Atlantic Drift is not felt in Finland. There the difference between winter and summer temperatures is considerable. Find on the map on page 199 Helsinki in Finland and Bergen in Norway. These cities are at about the same latitude. Yet the harbor at Bergen is ice-free all year, while Helsinki is icebound from January to May and has to be kept open by icebreakers.

Where the marine west coast climate prevails, the lack of sunshine, the humidity, and the low summer temperatures permit little crop variety. Many farmers grow rye and oats, which require less sun than wheat and corn. Fruits and berries that need a lot of moisture grow well. Potatoes and sugar beets are ideal crops for this cool, moist climate. About half the world's potatoes and sugar beets are grown in northwestern Europe. The growing season is long because the rare frosts, if they do come, arrive late in the winter.

The marine climate is cool enough for cattle raising, and some countries export dairy products in large quantities. The parts of Europe affected by this climate have level or gently sloping land, with soil well adapted for the forage crops on which cattle thrive. Since pasture grass grows well in this climate, the cattle can graze in the fields all year.

The fleece of sheep grows thicker and longer in a damp climate. This accounts for the extensive sheep raising in the highlands of Scotland and in western Ireland, where the weaving of homespun woolen tweeds supports small but thriving industries.

Remember that the marine west coast climate is caused by westerlies which blow over warm ocean waters. If the warming winds were not present, the Europe we know would not exist. It would be cold, bleak, and capable of supporting only a sparse population.

The Humid Continental Climate. Locate Berlin on the map on page 199. Berlin is near the area where the marine climate changes to the humid continental type of climate. The humid continental climate is like that of the Great Lakes area in Anglo-America. The winters are colder and the summers are hotter than in the marine west coast climate. The weather is also much more variable, and sudden changes of temperature are common. The rainfall and snowfall are less than in the marine climate, but, as you

would guess from the name *humid*, sufficient to water crops. An average of 25 inches of rain falls annually. It may come in intermittent showers, downpours, or in thunderstorms, with intervals of clear sunny days. Rain comes more frequently in spring and summer than in fall and winter. Spring and summer rainfall averages two to three inches a month. The fall and winter average is one to two inches a month.

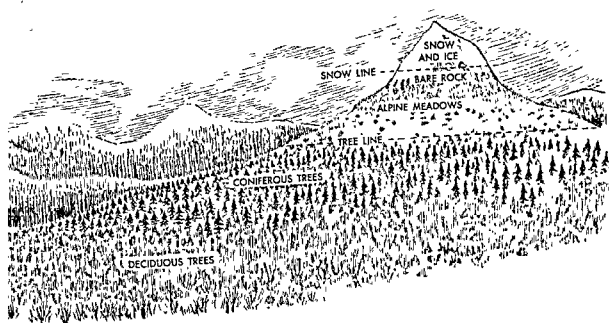
By the time the westerly winds reach eastern Germany and Poland, they have lost the warmth they had been carrying from the west coast. In eastern Germany and Poland, cold winters cover the land with snow. Because of the low temperatures, the snow remains on the ground much of the winter. The summers are warm, but shorter than the summers farther west or south. The growing season in Poland and eastern Germany is about 100 to 150 days. In Czechoslovakia, Hungary, and the Balkan states the growing season may last 200 days.

The humid continental type of climate is quite different in each of the four seasons. After a cold winter, people watch eagerly for signs of spring. Then the perennials, the plants that continue to live from year to year, bud and flower as the temperature slowly climbs. Winter is slow to yield to spring in regions with a humid continental climate. Temperatures do not rise steadily but jump up and down. A late frost may come when least expected. Summer is the time of full bloom, and temperatures are sometimes too high for comfort. Fall comes slowly and gently. The annuals, plants which live only one year, die. The trees shed their leaves before the winter finally arrives, with temperatures that may drop below 0° F. and with heavy snowfalls.

In the continental climate regions which have a short summer, spring wheat, rye, oats, potatoes, flax, and hay are grown. Farmers find dairying a profitable industry. Pastures are good, and the heavily populated areas provide good markets for dairy products. In the southeast, where the summers are longer, wheat is the main crop. Corn, sugar beets, and tobacco are also grown in parts of southeastern Europe.

The Subarctic Climate. Look at the climate map on page 15. You can see that north of the humid continental climate region, a subarctic climate takes over. This climate of northern Scandinavia has long, cold, snowy winters. Summers are short and cool, and the temperatures rarely reach 65° F. The cold climate makes living conditions difficult. However, this climate affects only a small portion of the European continent. Iceland, Norway, Sweden, and Finland all have areas with subarctic climate, but most of the people live in the warmer sections.

This illustration shows how mountain vegetation changes with elevation. Trace this change from the warmer slopes to the snow-capped peaks.



EUROPE'S SOILS AND VEGETATION

You have seen how varied Europe is in its physical structure and in the way people use their land. Now let's look at the natural vegetation of Europe. Natural vegetation is vegetation that grows naturally in a place whether or not man lives there. There is little of the original vegetation left in Europe. The exceptions are the forests in Scandinavia, the forest and alpine meadows of the high mountains, the prairie region along the lower Danube, and the tundra and forest regions of the far north.

Many parts of Europe were forested before the coming of man. Man cleared much of the forest, especially where fertile forest soils were good for farming. When forested areas were settled, timber from the clearings became building material and fuel. Today some of the farm lands have been replaced by large cities.

Next to the volcanic and alluvial soils, Europe's most fertile farm land is in regions that once were forested. The farmers have

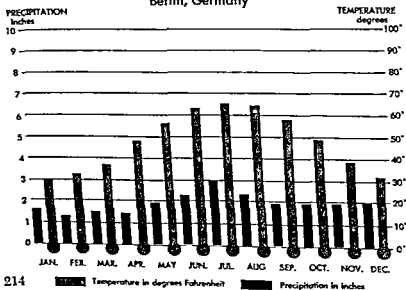
been able to keep the soil fertile and even improve it by constant care. Crop rotation became popular during the eighteenth century. Chemical fertilizers have been a boon to the food-hungry soil. Before men used artificial fertilizers, manure supplied the necessary enrichment for the soil. The humid climate with its light rains keeps the soil moist. The loss of minerals or plant foods is not heavy in soil washed by gentle rains.

In southeastern Europe, we find a natural prairie region on the rolling plains along the lower Danube River. Hungary, Yugoslavia, Romania, and Bulgaria share the richest agricultural lands on the continent. Their grassland soils are rich in humus formed by the decay of the thickly matted grass roots. This area has been called the granary of Europe because so much grain is grown here.

The plant life of the tundra regions of northern Europe consists mainly of lichens, mosses, and stunted clumps of grass or bush. South of the tundra, however, are thick forests of needleleaf, or coniferous, trees such as spruce, pine, and fir. These forests support the valuable lumber industry of the Scandinavian countries.

Most of the mountains and hills of Europe have tree-covered slopes on the north and west. These forests of mixed beech and oak were left standing when the sunnier slopes were cleared for farming. Hills that are too steep to farm are still forested. Many of the ranges in the Alps are so high that the tree line is a long way below the peaks. When men learned skills like wood carving, wood became an art material for the people of the Alps and the Central Highlands. To this day, beautiful carved objects come from the skilled hands of European craftsmen.

Berlin, Germany

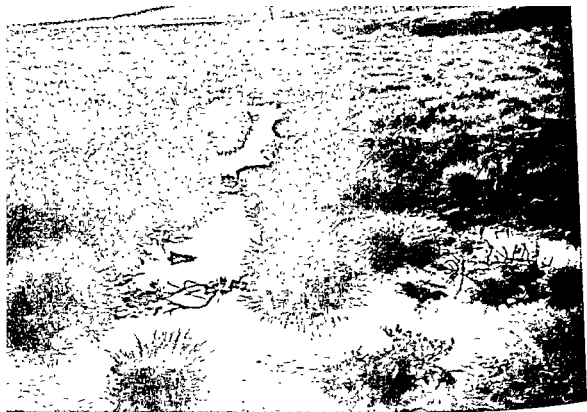


Berlin receives its heaviest rainfall in the summer when temperatures are highest.



Many parts of northern and western Europe are dotted with lakes and swamps. In some areas of poorly drained land, peat bogs have formed. Peat is the decayed vegetation from plants that grew in wet marshy ground thousands of years ago. Layer after layer of plants decayed and were pressed down into the ground by other plants which grew above them on the surface of the marsh. The soil beneath peat bogs is usually acid and needs many years of care before it can produce good crops. In Ireland, Germany, and Poland, peat has been used increasingly as a fuel for industry. The peat is used for generating electricity to light and heat homes and to power industry.

Scattered throughout the British Isles are highland areas called moors. Moorland is so poor that only scrubby vegetation grows on it, in spite of adequate moisture from rain and fog. In general there is little grass to feed animals, and most of this land is unproductive. Wildlife flourishes on the moors where the owners of large estates set aside vast areas for hunting. The moors are usually picturesque, especially in summer and autumn when the purple heather, a stubby ground cover, is in bloom.



Moorland, bogs, and marshes are useless for farming. Even if drained, this land would still need much care to make it productive. (Hente from Monkmeyer)

In some parts of Europe the soil is too sandy for agriculture. There we find forests of needleleaf trees, especially pines. On the wetter clay soils there are thick woods of spruce. In lowland regions where the climate is very damp, forest clearings often make good pasture lands.

Finally we come to a type of vegetation called alpine meadows. Last year you read about alpine meadows in Anglo-America. If you walk above the tree line in the mountain lands of Europe during spring or summer, you find lush meadows dotted with colorful mountain flowers. During the summer, these meadows provide fodder for the dairy herds of Europe's mountain countries. The fragile plants wilt as soon as they are gathered, but they are hardy enough to withstand cool temperatures at high altitudes.

We have seen that Europe has many great physical advantages. Among these are its good climates and fertile soils, its forests, and its closeness to water highways. We shall soon see that this small but prosperous continent is also wealthy in minerals and in the energy and skill of its peoples.



Lapland is the most sparsely populated area of Europe. The everyday dress of a Laplander is very colorful. (Henne from Photo Researchers)

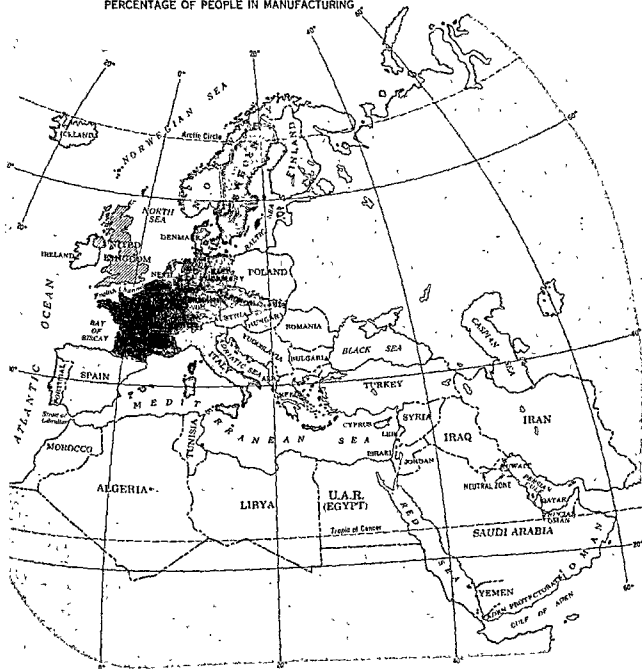
CHAPTER 11 Economic Europe

The Growth of Europe's Population. Europe is one of the most densely populated areas in the world. This second smallest continent contains almost 15 per cent of the world's people.

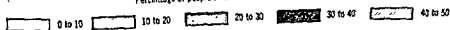
There are many good reasons for Europe's dense population. The first people to settle in Europe found fertile soils and year-round rains. They could grow crops and raise animals much more easily than in the cold climates to the north or the hot, dry climates to the south. Forests of hardwoods and evergreens supplied an almost endless source of lumber for fuel and for houses and ships. Fish of all kinds could be caught in the cool Atlantic waters.

Over the centuries, the peoples of Europe grew in numbers. They learned to live together, first in tribes and then in nations. As time went on, the European nations that we know today came into being. At first the most advanced peoples of Europe were those that lived in the Mediterranean Basin. Greece, Rome, and the countries of the Iberian Peninsula each had its era of wealth and leadership. However, the southern nations gradually fell behind the more northerly nations, which had greater resources.

EUROPE AND THE MEDITERRANEAN WORLD:
PERCENTAGE OF PEOPLE IN MANUFACTURING

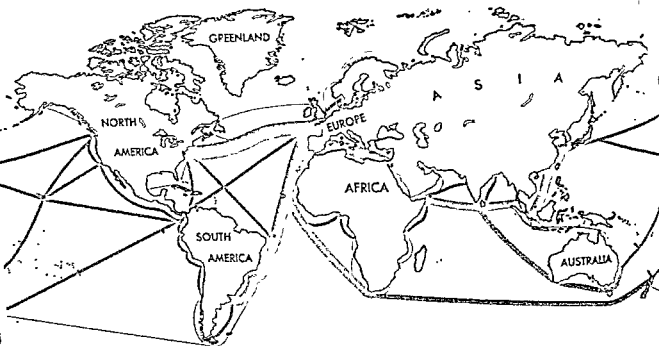


Percentage of people in manufacturing by countries



Scale of Miles
0 500 1000

OCEAN TRADE ROUTES



Width of lines is proportional to trade volume.

As Europe's population grew, her people found and began to utilize the continent's abundant mineral resources. Since they wished to buy goods from other lands, they sought a way of life not entirely dependent on agriculture. They started to develop industries based on coal and metallic minerals and on cloth fibers that could be grown in cool climates. Europeans had inherited from the Greeks a scientific way of looking at life. Industry received great stimulation from the scientific discoveries of Europeans.

Because Europe was nearly surrounded by water, her sailors could open up trade routes and sell European products in every part of the world. Great manufacturing centers arose in the parts of Europe that were rich in minerals, and their populations grew and prospered. Unlike regions that depend mainly on agriculture, Western Europe could support many more people than her farmers could feed. She could produce manufactured articles which she sold abroad to buy food. During the eighteenth and nineteenth centuries, Europe's growing number of overseas possessions provided sure markets for her goods. Prosperity due to trade provided plenty of jobs both in agriculture and in industry.

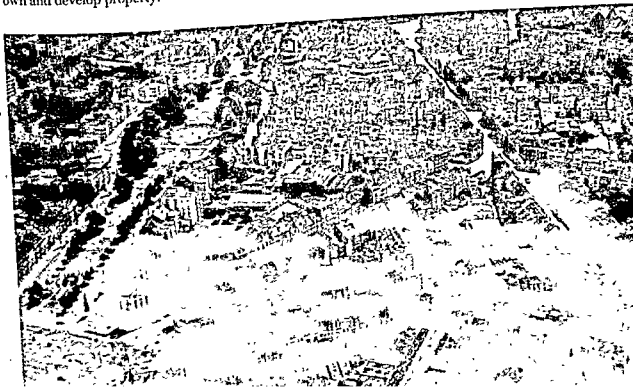
Only the arctic regions, the high mountains, and the more arid Mediterranean parts of Europe remained sparsely populated.

As you study the countries of Europe, you can compare their densities of population. These densities vary from over 660 persons per square mile in the Netherlands to less than 28 persons per square mile in Norway. In recent years, many people have moved from their original homes because of war. Many fled from their homelands seeking freedom when Communist governments came into power in eastern Europe.

The European Economy. The Western European countries have similar economies. The economy of a country is the way the country manages its resources and its production. The ways in which a country's people make their living are a very important factor in its economy. Europe has a very small land area with a very large population. It would be difficult for so many people in this small area to produce all the food and manufacture all the goods needed to maintain a comfortable way of life. Instead they have developed a commercial economy. This means that the people trade their surplus agricultural, mineral, or industrial products for goods they do not have.

People in the industrialized countries of Europe have developed a high standard of living. They have accomplished this by intelligent use of their natural resources. Most Western European farms and shops are owned by the people who run them. People have greater interest in their work when they have a chance to own and develop property.

Belgium is the second most densely populated country in Europe. Brussels, its capital, has a population of almost one and a half million people.
(Hollyman from Photo Researchers)



EUROPE. POPULATION



Persons per square mile



EUROPE. INDUSTRIAL AREAS



Industrial areas

In a few cases the government has taken over the control of an industry. For example, in the United Kingdom and in Ireland, radio, television, and rail and air transportation are partly controlled by the government. Several other European governments own and operate the railroads within their boundaries.

In other cases, governments run projects that demand huge amounts of money which private individuals or businesses could not provide. Governments often finance hydroelectric projects or harbor developments, like the rebuilding of the city and port of Rotterdam after World War II. In spite of these large national projects, private ownership of farms, factories, and shops is important in the economy of non-communist Europe.

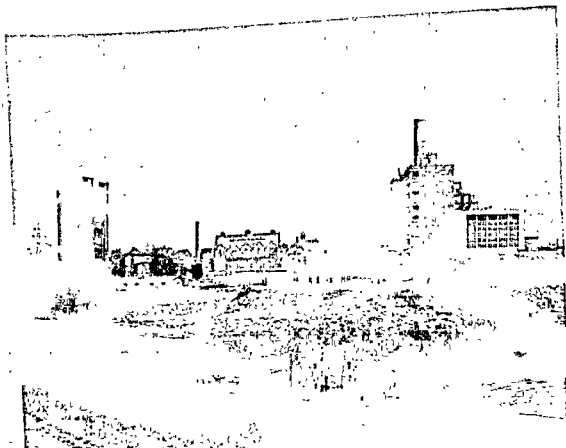
Modern Industry. Since Europeans rely so much on trade, they have tried to find faster and better ways of making things. They have invented all kinds of labor-saving machinery. With these machines, workers can produce many more things than workers in those countries which rely on animal and human labor. Europe's people have made coal, oil, and running water work to give them a very high standard of living.

When the people of Europe began to use machinery and set up factories their lives changed greatly. We call this great change the Industrial Revolution. Up to the eighteenth century, most manufactured articles had been made in the homes or small shops of skilled craftsmen. Children acquired skill in handicrafts from their parents and thus from generation to generation small enterprises remained the property of single families.

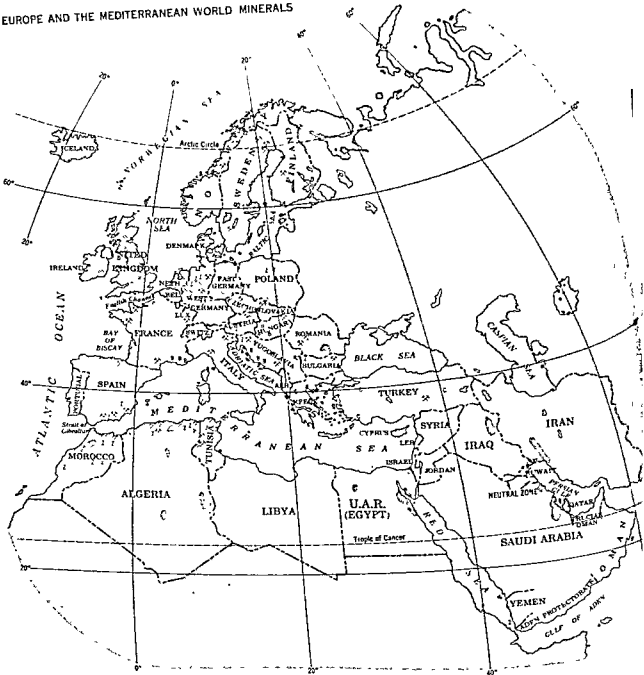
With the harnessing of steam power, machines were introduced in the factories, and each worker was responsible for a single task in a whole process. Machines made it possible to produce goods far more rapidly than could be done by hand craftsmen. The increased production provided surpluses, or goods left over after the needs of the local people were satisfied. Money from the sale of the excess items was used to build more factories. When local resources of raw materials ran short, new sources of supply were sought abroad. As a result, international trade was expanded.

The steamboat speeded water travel and transportation. Motor barges replaced the horses that pulled barges along the canals. Railroad networks sprang up almost overnight. Steam locomotives hauled hundreds of times more than the old wagons had done. Freight trains and steamships carried perishable goods rapidly and so increased the markets. People enjoyed goods they had not known before.

Germany was one of the leaders of the Industrial Revolution. Water provided a source of power and a means of transportation. (Greene from Shostal)



EUROPE AND THE MEDITERRANEAN WORLD MINERALS



Bituminous coal



Petroleum

• Chrome

* Phosphate

✕ Iron

• Bauxite

• Zinc and Lead

Scale of Miles
0 500 1000

Europeans have always been very inventive. Let's take a look at just a few of the things they have given to the world. James Watt's steam engine powered the weaving machines and the locomotives that were invented in Britain. In Britain, steelmaking was also developed to a fine art. Italy's Marconi invented the first radio transmitter. The automobile, invented in France, has received many of its improvements from French engineers.

In recent years, European scientists have pioneered in the development of radar, the gas turbine, and atomic power. The nations of Europe have a number of atomic power stations and are linked by a network of jet airplanes and helicopters. Today the Mediterranean nations of Europe are catching up with their northern neighbors. For example, some of the most modern trains and hydrofoil ferryboats are in use in Italy and Greece.

In industrial production, Europe ranks next to the United States. Some European countries are more industrialized than others. Germany, France, and the United Kingdom are the leaders. In the less advanced nations, such as Yugoslavia or Albania, farmers still outnumber other workers and still work small plots of ground. Scientific and mechanized farming develops slowly in these countries. Because big machines cannot be used to best advantage on small plots, it takes many persons to do the work that must be done. Efforts are being made to increase the use of agricultural machinery.

Modern Agriculture. Commercial agriculture is more common in west-central and northern Europe than in many other parts of the world. Though the farmers' plots are small, they are intensively cultivated to supply food for people in the industrial areas. The soil is well cared for and the production per acre is high. Factory workers and farmers are dependent upon each other. Nitrate and lime fertilizers made in the factories supply the farmers with needed material. The men and women who work in the factories obtain their food from the farms.

European countries produce more than half the world's potato crop, more than three fourths of all the rye grown in the world, and at least a quarter of the world's supply of barley and wheat. This shows how much can be grown on a small amount of land. Certain crops are used for industry as well as for food. Potatoes are grown not only to feed people and animals but also for the manufacture of starch and alcohol.

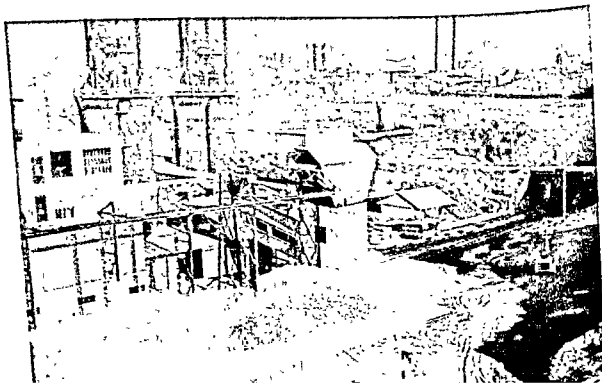
Trading Nations. Europeans must trade in order to maintain their relatively high standard of living. They must import many of the raw materials needed in their factories. They must find new world markets for their goods. Trade suffers during a war, and Europe has been the battleground of two world wars in the last

half century. Each time Europe has picked itself up from the ashes to rebuild. Each time it has regained its prosperity.

Since World War II, however, a permanent change has come about in Europe's trade relations. Even before World War II, some of the colonies of European countries had become self-governing. After World War II, most of the remaining colonial areas became independent. Few colonies exist today. Europeans now buy the raw materials they need and sell their manufactured goods all over the world instead of doing most of their trade with their colonies.

Nations with fast-growing industries are rising to compete with Europe. Japan is such a nation. The United States also competes with the European nations. Because of competition for world markets, Europeans must find ways to keep down the cost of production of the goods they manufacture. One way has been to develop new and cheaper fuel sources. As Europe's better grade coal seams are worked out, the cost of coal mining increases. Oil is often cheaper than coal, even when it is imported. There is hardly a port in Europe today where one cannot see oil tankers unloading petroleum to be used for fuel. Coal is no longer needed

Coal deposits in Germany are an important part of the mineral wealth of the European Coal and Steel Community. (Wolff from Shostal)



in such great quantities for local industry or for export because of the use of petroleum, hydroelectric power, and nuclear energy.

EUROPEAN TRADE ASSOCIATIONS

For centuries Europe has been divided into many small nations. Trade has been restricted because of the taxes that each country demands on goods imported and exported. These taxes are called *tariffs*. Businessmen have not been allowed to trade freely outside their own countries because each government restricted the number of things that could be sent out of a country or brought into it. Such restrictions are called *quotas*.

After World War II, Europeans took a long look at their economy. They saw that Europe could never be really strong until quotas and tariffs between the various countries were abolished. Gradually the idea of a European trade community began to grow. It was suggested that the nations in this community should trade freely with each other without tariffs or other restrictions between them. People hoped that such a community would also prevent war among the European nations. The nations in it would benefit more from a strong Europe than from their own national ambitions.

The European Coal and Steel Community. In 1952 the first step was taken. Six nations—France, West Germany, Italy, Belgium, the Netherlands, and Luxembourg—joined to form the European Coal and Steel Community. The coal and steel industry had always been a problem for businessmen in Europe. In less than two hours, they could fly in a helicopter over nine tenths of continental Europe's coal fields and seven tenths of its steel plants. Yet these important resources belonged to six different nations. Factory managers found it difficult and expensive to buy iron ore or coal that lay across a border, even if its source was only 20 miles away.

When the Coal and Steel Community came into being, all this was changed. Tariffs and quotas were no longer much used. Manufacturers could buy and sell freely in other countries belonging to the Community. If workers wanted to find jobs elsewhere, the Community would even pay their moving expenses. A ruling body was set up, with representatives from all six countries, to supervise the Community. A court of justice was also created to settle legal disputes between members. At least in theory, the Community was completely independent of the national governments. Within the Community, the business of the six nations as a whole was considered more important than the business of each individual nation.

The Common Market. In its first five years, the Coal and Steel Community accomplished a great deal. In 1957, the Community changed its name to the European Economic Community. Today this is usually called the Common Market. The Common Market agreement calls for the lowering of tariffs and quotas on all goods traded within the member countries. This is being done gradually. If all goes well, the Common Market countries will soon be like one big country as far as trade is concerned.

Euratom. At the time that the Common Market was formed, its six members established the European Atomic Energy Community, sometimes called Euratom. Euratom joins the resources and scientific knowledge of the six countries for the development of atomic power for peaceful uses. In a few years, Europe will not have enough coal for all her factories. Then electricity produced by atomic energy will be ready to take over.

The Future of the Common Market. The trade agreements among the Common Market countries have had a great effect on Europe. Steel production rose 84 per cent in ten years. Before the formation of the Common Market, many of Europe's people were deprived of products from other countries because their countries were too poor to spend money abroad. These people can now find foreign goods on the shelves of their shops.

Because European manufacturers are supplying a larger market, they now have almost as many customers as the manufacturers of the United States. For this reason, they can spread costs of production over larger quantities of goods and sell more cheaply. Workers, too, have more security because they can find jobs in other Common Market countries.

Even more important than trade is the new exchange of ideas. Businessmen travel and see how other people live. Just as the people in the United States are all Americans, so, too, the people in the Common Market countries are coming to see themselves as Europeans rather than as French, German, Belgian, Dutch, or Italian. A feeling of brotherhood grows out of meeting, working, and trading with peoples of other countries. War becomes less and less of a threat among people who trade and work together in harmony.

The Common Market has been a great success. Other European countries will undoubtedly join it as time goes on. It is quite possible that in the future the nations of western Europe will forget their differences. Then there may be a United States of Europe.

I. CHAPTER REVIEW

A. Terms to Know

metallic minerals
densely populated
sparsely populated
economy
standard of living
international trade
Industrial Revolution

hydrofoil
coal seam
tariffs
quotas
Coal and Steel Community
Common Market
Euratom

B. Places to Locate

France
West Germany
Italy

Belgium
The Netherlands
Luxembourg

C. Review Questions

1. List four good reasons for Europe's dense population.
2. How have people in the industrialized countries of Europe developed a high standard of living?
3. What effects did the Industrial Revolution have on the economy of Europe?
4. Why is crop production per acre high in west-central and northern Europe?
5. Name the six nations that belong to the Common Market.

II. OBSERVATION ROOM

1. Study the map on page 215 and name the geographic regions in which the Common Market countries are located. Do you think the Common Market countries will have much or little variety in resources, products, crops, and livestock? Explain.
2. Study the population map on page 222. Can you tell where the mountain ranges are? Where are the lowlands and the valleys? How did you decide?
3. Study the map on page 199. Can you explain why water transportation is important in Western Europe?

III. THOUGHTFUL CORNER

1. What is a commercial economy? Why have Western Europeans developed a commercial economy? Does the

United States of America have a commercial economy? Explain.

2. Why was the European Coal and Steel Community started? In what ways is the Common Market wider in its operations than the Coal and Steel Community? Do you think the Common Market will affect the European nations? Explain.
3. What is Euratom? Why is it extremely important to European industry?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. Make a bulletin board display showing what products can be freely traded among Common Market nations without tariffs. Next to the name of the product write the names of the countries that are the major producers of each item. Some library research will be necessary for this project.
2. Draw a "Before and After" cartoon or poster showing some trade problem that existed before the founding of the Common Market and how the Common Market has helped to solve it. One example might be the shortage of jobs in Italy and the villages of Italian workers now established in West Germany.
3. Prepare an illustrated report on the operation of Euratom. Include a display showing the many peaceful uses of atomic energy.

B. Readings

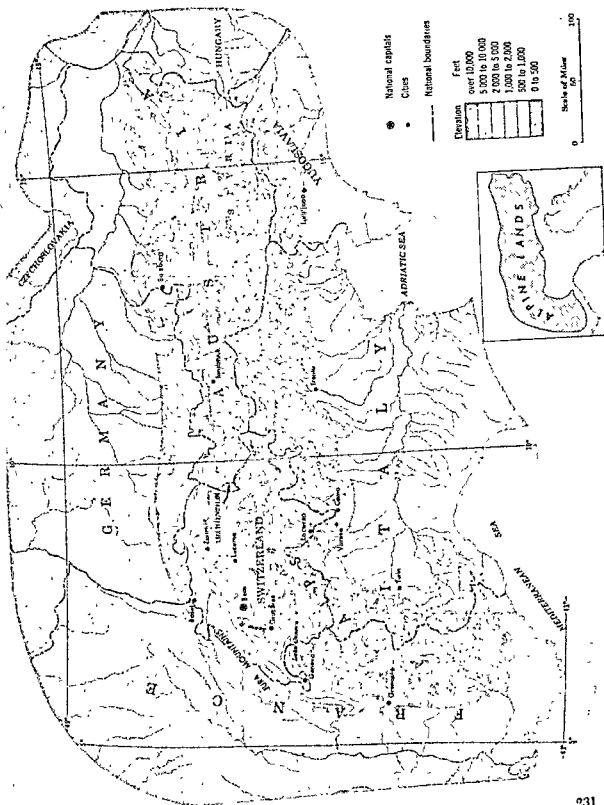
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Part V

The Regions of Europe

The landforms, soils, and climates of Europe vary from region to region. Yet in every area, the people of Europe have learned how to make their land productive. (*Gidal from Monkneyer*)



12 The Alpine Lands

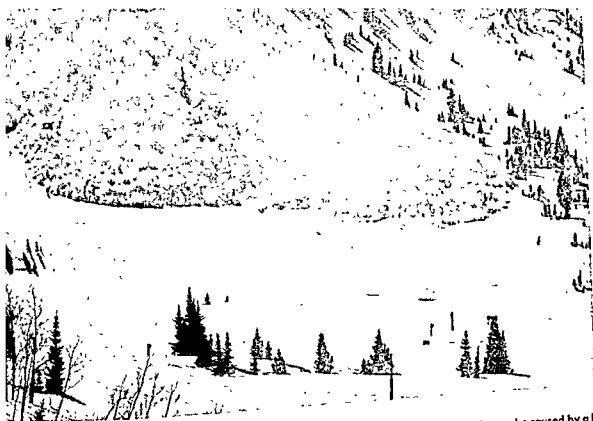
The Alpine Lands lie north of Italy's Po Valley, but they are quite different from the warm lands of the Mediterranean Basin. The air is cool and crisp, and the people enjoy scenery that attracts tourists from all over the world. There are rolling plains, wooded hills, and rugged snow-covered mountains. Swift mountain streams tumble over rocky cliffs. Many of the mountain valleys, deepened by glaciers, are broad, smooth, and fertile.

If you drive along one of the many good roads in the Alpine Lands you pass groves of walnut and chestnut trees nestled in the valleys. Farther up the slopes are beeches and maples. Still higher on the valley slopes, the broadleaf trees give way to firs, pines, and larches. At a village high in the valley, you can see the tree line on the mountainside. Above the tree line, you find small bushes and shrubs, then pasture land and meadows, which in spring are gay with wild flowers. Towering over everything are the massive, snow-covered mountain peaks.

Countries of the Alpine Lands. A number of countries share the Alpine Lands. Around the edge of the region lie France, Italy, Germany, and Yugoslavia. The Alpine portions of these countries are small but important, since they provide water power to run industries. Switzerland and Austria are the heart of the Alpine Lands. Switzerland lies entirely within the mountains. Austria's Alpine regions merge with the lowlands of the Danube Basin in the east.

Neither Switzerland nor Austria has a seacoast. In spite of this, both countries are able to export and import goods by water. Basel, in northern Switzerland, is the first major port on the Rhine River. From Basel goods are carried by barge down the Rhine to Rotterdam or through the connecting waterways of Western Europe. Austria has the river port of Vienna from which water traffic can move down the Danube to the Black Sea.

Alpine Weather. As you might guess, climate in the Alpine Lands varies with altitude. At any time of year, the temperature drops about three degrees for every 1,000-foot rise in elevation. This means a shorter growing season for farmers who live on the high mountain slopes. Winter frost and snow come early. The crops that farmers grow depend on how long the sun warms their fields. The valleys and the north-facing slopes are cold or cool for most of the year. The lower south-facing slopes of the mountains



An avalanche can be caused by a loud or sharp noise. (U S D.A.)

are good farm lands, since they receive more hours of sunshine than the slopes facing north. Even grapes grow well on these sun-warmed slopes.

Moist winter winds rising over the Alpine Lands drop large amounts of snow. The snow on the high peaks never completely melts, although some of it is washed into the valleys by summer rains. Snow means many things to people in the Alpine Lands. Lumbermen use the smooth snow surface to slide logs down from the mountain forests. Farmers can bring down hay on sleds from high mountain pastures to barns in the valleys. Winter sports bring many tourists to the Alps. The snow also stores water that feeds the Alpine rivers in spring and summer.

Snow has bad effects, too. An early snow may prevent crops from being harvested, and a late thaw in spring may delay planting. Snow often blocks roads and railroad lines. The spring thaw brings worry to villagers in the Alpine Lands. Snow on the steep slopes presses downward against rocks and trees. Occasionally those barriers give way, and many thousands of tons of snow crash into the valley, burying everything beneath them. Sometimes a village and its inhabitants are wiped out in such a slide, which is called an *avalanche*.



The blanket of snow melts, uncovering good grazing land in the beautiful Swiss Alps. (Schneider from Shostal)

On the high peaks and ridges above the Alpine meadows, rocks crack and splinter as the result of heating by day and freezing by night. Water seeps into cracks in the rocks and expands when it freezes. Freezing widens the cracks, and great chunks of rock split off. This helps the Alps to keep the jagged appearance originally caused by glaciers.

SWITZERLAND

Switzerland is a small Alpine country divided by mountains into many valleys. Switzerland's mountain borders are easy to defend. It is interesting to read the history of this small country. The early Swiss people were of several nationalities. They grouped together to defend their borders. Today four languages are spoken in the country, and most Swiss people also speak English. The Swiss are nearly all Christians. A little more than half the people are Calvinist Protestants; nearly all the others are Catholics.

The Swiss people have united to form one of the most prosperous democracies in the world. Switzerland is divided into districts called *cantons*, similar to our states. Each canton has its own local government and also sends representatives to a national parliament. Bern, the capital, corresponds to our capital city, Washington.

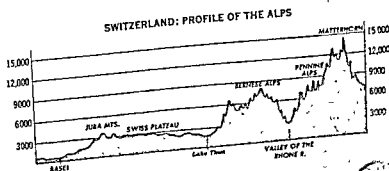
Because their borders are protected by mountains, the Swiss have managed to remain neutral in all recent wars. Despite this neutrality, Switzerland maintains an army. Every male citizen must serve for six months and then join the reserves. Because of their neutrality in World War II, the Swiss were able to care for refugees from the less fortunate countries of Europe and thus saved many lives.

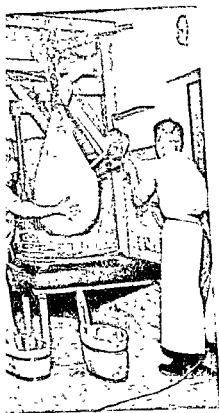
Two thirds of Switzerland's people live on the plateau between the Alps and the Jura Mountains to the northwest. This plateau is only 150 miles long and 20 to 40 miles wide, so the population density is high. The plateau is hilly and forested, but much easier to cross than the mountains. Both farming and industry are concentrated in this important region.

Swiss Farming. Only 12 per cent of Switzerland can be used for crop farming, and most of the farming is done on the north-western plateau. Wheat, barley, sugar beets, rye, and oats are common crops, and grapes are grown on sunny slopes. The Swiss work their land intensively, but they must still import food from other countries.

Dairy farming is the most important type of agriculture in Switzerland. Herds of brown dairy cows are to be seen everywhere. Forty-one per cent of the land in Switzerland is classed as pasture. Hay crops for winter feeding are grown on more than half the cropland.

Swiss cattle spend the winter in well-protected barns. In the spring they are put out to pasture. Cattle in the mountain regions are driven up the slopes as soon as the snow cover begins to melt. The cows wear bells which jingle in the crisp spring air. They graze their way up, keeping the melting snowline just in front of them. The herders trudge up the paths after the cattle. It is a difficult climb, and the men wear spiked boots to help them get a foothold in the thawing ground.





Swiss cheeses are world-famous for their flavor.
(Kostich from Monkmeyer)

The herders haul tools and supplies to the wooden huts they have built in the summer pastures. They will live and work here for several months, and they must have protection from the weather. The shelters might look strange to you, for the roofs are weighted with large stones. The stones keep the roofs anchored when the frequent fierce winds blow across the high Alpine meadows.

Making Cheese. During the long summer days on the mountains, the herdsman work at making cheese. They pour the milk into vats that stand in the wooden shelters. Next they slowly heat the milk. The curd begins to separate from the remaining liquid, which is called whey. The milk is watched very carefully so that it does not become too hot. The whey is drained off and often used for cattle feed. The curd is chopped into small pieces and gently heated again. This drives off still more of the moisture. The skilled Swiss cheese maker knows just when to cut off the heat so that the cheese will be neither too soft nor too dry. The cheese is then pressed into huge cakes and made ready for storage.

During storage, or aging, the cheese ripens and acquires its flavor. If the mountain pastures are far from the villages, the cheeses are stored in shelters and brought down at the end of the summer. Most of the villages have a group arrangement for marketing the surplus cheese.

Roofs in the Alpine Lands need the added weight of stones to hold them down in strong winds. (Gidal from Monkmeyer)

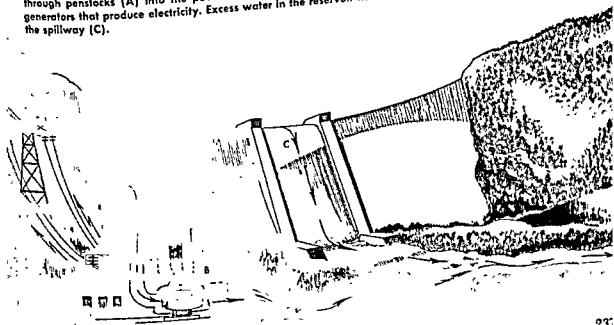


Forest and Water Resources. One fourth of Switzerland is covered with forests. Most of the forests are coniferous. Coniferous trees are needleleaf trees whose seed pods are in the form of cones. Pines and larches are typical conifers. They are used mostly for building and for making paper pulp.

Switzerland has few minerals, yet almost half of her people earn their livelihood in industry. One reason is that Switzerland has a tremendous abundance of hydroelectric power. Few homes, even in the tiniest hamlets, are without electric light. About 380 streams rise in the mountains and fall rapidly to lower levels. On the way, many of them have been dammed, some more than once. There is a network of nearly 400 power stations in this small country.

You might like to visit one of these power stations on the Saane River, which flows past the town of Gruyères. Gruyères gives its name to a famous Swiss cheese. Above the valley a waterfall comes tumbling down from a river bed that is like a notch cut in the side of the valley. This notch is one of Switzerland's famous "hanging valleys." The floor of this hanging valley is high above the main valley. The river is dammed at a narrow gap in the hanging valley. Below the dam are the power station and a network of towers whose cables carry the electricity for many miles to homes and factories.

A hydroelectric dam holds back water in a reservoir. From there water flows through penstocks (A) into the power station (B) where the water turns generators that produce electricity. Excess water in the reservoir flows over the spillway (C).



If you study the diagram on page 237, you will see how the water behind the dam is put to work. When the dam is built, pipes called *penstocks* are built into it. The penstocks run from near the top on the deep water side to the turbines at the foot of the dam on the other side. Water enters the steep pipes and rushes with great force against the blades of a turbine. A turbine is a machine that turns a huge coil of wire between the two ends of a magnet. When coils of wire turn close to a magnet, electricity flows as a current in the wire. The faster the coils turn, the stronger is the electric current. The best dams are built where the penstocks can be made long and steep and thus deliver more power.

Switzerland has built power plants at many of the best sites in the country. There are still some sites that are not used. Switzerland is fortunate in having its people and industries close to the power sites. Since electric power can be used in large or small factories, many villages have their own textile mills. It is not uncommon to find small electric looms in private homes. You remember that after the Industrial Revolution, when machines began to be powered by coal, factory workers gathered into crowded cities. Electric power, however, can be easily transported, to permit workers to live in healthier, less crowded areas.

Swiss Industry and Economy. Switzerland has used electric power for many industries. Silk and cotton mills manufacture cloth, ribbons, or laces. All the mills use electric power. Most of Switzerland's railways are electric. Electricity supplies power and heat for paper and pulp mills using the spruce and fir of the forests. Electricity is used in processing milk for milk chocolate or condensed milk, for refining ores and processing metals.

The most important Swiss industries are metal industries. Aluminum refining is one. Aluminum requires great quantities of electricity to separate it from its ore. The bauxite ore from which aluminum is obtained is mined in France. It is very expensive to transport the bauxite to Switzerland, but aluminum sells for such a high price that shipping the bauxite is worthwhile. In summer, when the melting snows provide extra water to make more power, Swiss aluminum plants make special products. Among the products are synthetic jewels for watches, calcium carbide for grinding stones, and alloy metals for special steels.

In addition to good power sources, Switzerland has another great advantage. Her people are gifted with many skills. Swiss craftsmen are known the world over for their watches, embroidery and laces, precision instruments, jewelry, musical instruments, chemical dyes, toys, and wood carvings. The Swiss have found a formula for success in industry. They manufacture small articles which are easy to ship but high in value.

These waterproof watches are being tested under water pressure by a Swiss watchmaker. (Henle from Photo Researchers)



Since the Swiss depend on trade, they must have good relations with foreign countries. Swiss neutrality has enabled the country to keep up a steady flow of imports and exports. During the two world wars people of other countries found that their money was safe in the banks of neutral Switzerland. Gradually Switzerland has become the banking center of the world.

Many Swiss manufacturers have set up factories in other countries. Swiss products such as milk chocolate and cheese are often made abroad. The Swiss must still continue to manufacture enough to pay for their great imports of food and other items. The transportation of raw materials and finished products also demands good relations with neighbors.

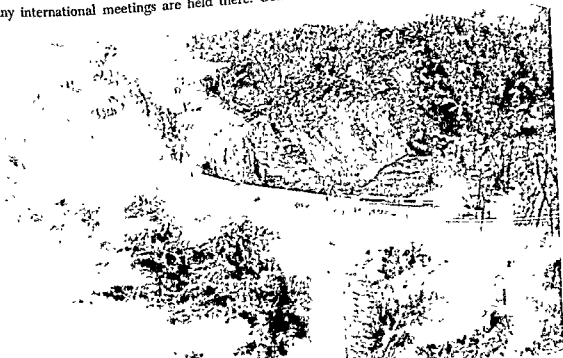
Tourists provide an important link with the outside world. People from all over the world visit Switzerland and enjoy its scenic beauty. They come for skiing and other winter sports, and for mountain climbing in the summer. To meet the needs of these visitors, many Swiss people work in hotels and restaurants.

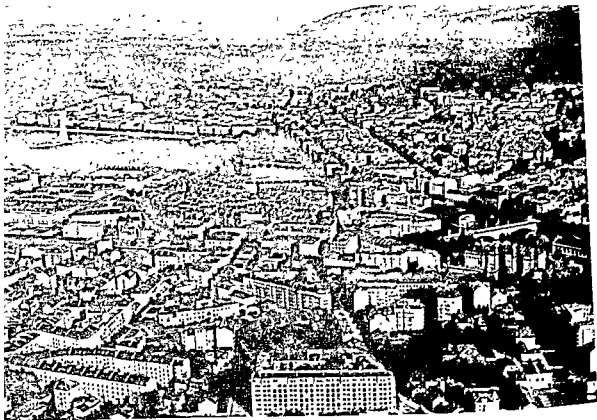
Because Swiss industry does not require large factories, there are few large cities in Switzerland. Zurich, the largest city, is the chief industrial center. Its cotton and silk goods go all over the world. They are as well known as its great banks and insurance companies.

Basel's banks and industries prosper because of the city's location on the Rhine where the river becomes navigable for large boats. Basel produces silk ribbons, leather, beer, and chemicals, especially dyes, for export.

Geneva is the Swiss city best known outside of Switzerland. Many international meetings are held there. Geneva is located

Switzerland is a country of many scenic wonders, both man-made and natural. (Swiss National Tourist Office)





Geneva is a tourist center, as well as the home of many international organizations. (Swissair)

on beautiful Lake Geneva, on the French border. Several United Nations agencies have important offices in Geneva. It is also the international headquarters of the Red Cross, which was founded by a Swiss citizen.

The cities of Locarno and Lucerne also provide meeting places for foreign diplomats. Bern, the capital of Switzerland, is small. It was chosen as capital because of its central location on the plateau.

It is not difficult to understand how the energetic people of Switzerland maintain their high standard of living. Few Swiss people know poverty. Their neighbors in Austria have a very different history.

AUSTRIA

Austria, another small, landlocked, Alpine country, was once the center of a great empire that included Hungary. Three fifths of this beautiful country lies in the eastern portion of the Alps. Its northern and eastern sections lie in the Danube Basin. Many countries have struggled to control the Danube. Austria has never known the peace that Switzerland has enjoyed as a neutral nation.

The Austrian people have the advantage of a common language, German, and most of the people are Catholics. Austria also has

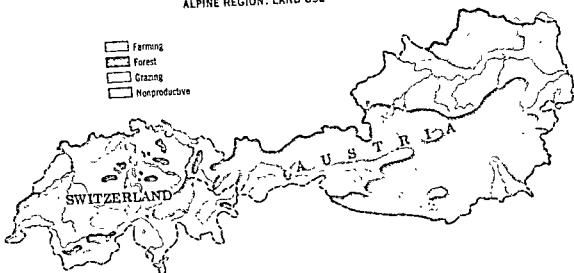
greater mineral resources than Switzerland, but the nation has been defeated in war twice in the last half-century. Austria's defeat in World War I led to the breakdown of her empire into smaller independent states. As a result of the war, Austria's trade was ruined, and poverty became widespread. Factories closed because of lack of money, raw materials, and markets. At the outbreak of World War II, Hitler's armies occupied Austria, and the country's resources were used to fight another losing war under German rule.

After World War II, Austria was divided into four zones. The United States, France, Britain, and the Soviet Union each controlled a zone. These countries proposed to help Austria become economically and politically stable, so that it could again be one of the free nations of the world. But the Soviet Union demanded great sums of money from Austria and removed complete factories with their expensive, valuable equipment to Soviet territory. These setbacks have made it very much harder for Austria to become prosperous again.

The great courage of the Austrian people has been in their favor. Today in Austria you can see that the gaiety of a fun-loving people has not been crushed. Music still rings through the mountains and valleys of this nation of great composers. The

Sunday Mass is over in an Austrian village. (Cidal from Monkmeyer)



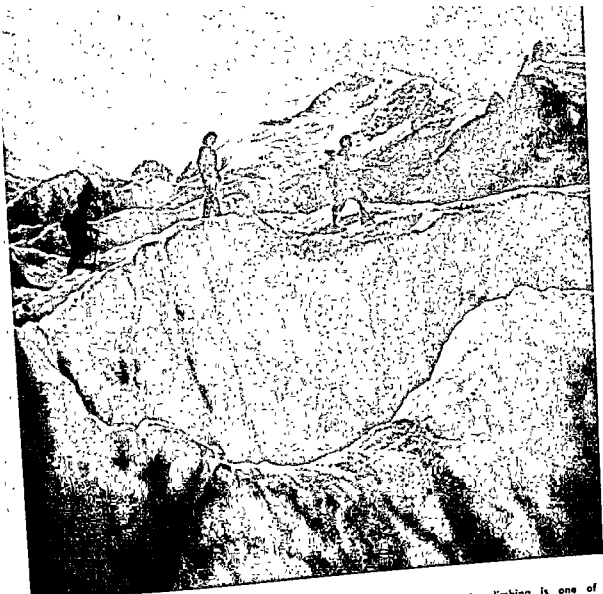


sparkling city of Salzburg, near the German border, draws thousands to its music festivals each year. The beauty of Vienna's streets and buildings reflects the greatness of the past, the love of beauty, and the gracious ways of the Austrian people.

Agriculture in Austria. As in Switzerland, dairying is the way of life in the Alpine agricultural areas of Austria. Land that cannot be used for food crops becomes pasture and hay fields. Wheat and rye are grown on the lower valley slopes. Corn is grown in the low eastern valleys near the Hungarian Plain, which have a warm continental summer. The warm, sunny, southern slopes are used for vineyards and orchards.

Austria has two agricultural problems. As in Switzerland, there is not sufficient land to produce the food needed by the Austrian people. Nearly 30 per cent of the country's food must be imported. The second problem arises because farmers cannot afford to buy fertilizer for their poor soils. As the country develops its resources and industry, the people are trying to make the soil produce more, to buy new farm machinery, and to use other methods that will raise the yield per acre.

Resources and Industry. Only one third of Austria's people are farmers. The rest earn a living in industry, lumbering, mining, and tourist trade. Austria's forests have supplied important quantities of lumber and finished wood products for export. The mines yield great amounts of lignite, but little hard coal. Once Austria supplied most of the world's magnesite, a mineral used as a lining for factory furnaces. Austria still exports important quantities of this mineral, but magnesite is also mined today in the United States, Yugoslavia, Greece, and India. Scattered over Austria are deposits of lead, zinc, copper, salt, talc, iron, and



Mountain climbing is one of the world's most exciting sports.
(*Swissair*)



Coal miners need good health care, as they spend most of their lives underground away from sunshine, air, and light. (*Monkmeyer*)

many cement-making materials. Austria has some of Europe's most important oil fields. Most of the oil wells are between Vienna and the eastern border.

As in Switzerland, one of Austria's greatest natural resources is the power of the swift Alpine rivers. Dams have been built to supply energy for Austrian industry and homes. Austria has developed her hydroelectric resources so well that she exports great quantities of electricity to neighboring countries. Electricity is easy to export, since it needs only a power line to carry it.

Austria's industrial production depends mainly on her own raw materials. Iron found in the province of Styria is of high quality. Hard coal must be imported in order to make use of this iron in Austria's few but important steel mills. The spruce forests supply raw material for a large pulp and paper industry. Native Austrian wool is made into cloth in the textile factories, but supplies of cotton have to be imported.

Vienna. Vienna was founded in ancient times at a strategic point on the Danube. Here the traffic from the eastern plains moved up the Danube Valley to Germany. From Vienna, mountain traffic could move down to the plains via the navigable lower Danube. At the same time goods from the Adriatic ports used the north-south routes over the mountain passes to Poland. The meeting of routes made Vienna a powerful city.

As capital of an empire, Vienna had beauty, bustling trade and commerce, and highly developed industry. The government of the empire was its principal business. After the defeat of Austria and the loss of most of its territory, Vienna proved to be too big for the little nation that was left. Many Viennese people emigrated to find work.

During World War II Vienna was badly bombed. The industrial sections of the city suffered most. When Allied forces occupied the country at the end of World War II, the United States spent large sums of money rebuilding the city. However, Vienna has never regained the importance it had during the days of the Austrian Empire. Even now the population continues to drop. Vienna still manufactures goods requiring skilled labor, such as jewelry and musical instruments. South of Vienna metal industries are developing, but even in a world of growing cities, it is unlikely Vienna will ever return to her former size. More than half of the Austrian boundary touches Communist countries. These countries trade mostly with the Soviet Union and other European countries under Soviet influence. Would you like to take a trip down the Danube to visit Hungary, Yugoslavia, Bulgaria, and Romania? We shall do this in the next chapter.

I. CHAPTER REVIEW

A. Terms to Know

tree line	hamlet
avalanche	penstocks
canton	turbine
curd	bauxite
why	landlocked
coniferous	magnesite

B. Places to Locate

Basel	Gruyères
Vienna	Zurich
Bern	Geneva
Jura Mountains	Locarno
Saane River	Salzburg

C. Review Questions

1. What is the importance of snow to the peoples of the Alpine Lands?
2. Why is Swiss neutrality important to her prosperity?
3. List at least five industries of Switzerland.
4. How does Austria differ from Switzerland in natural resources. What are the important industries of Austria?
5. Since they are landlocked countries, how do Switzerland and Austria manage to import and export goods by water?

II. OBSERVATION ROOM

1. Name the lines of latitude that are at the northern and southern boundaries of Switzerland and Austria. What part of the Western Hemisphere lies within the same area? Does this area have the same climate as the Alpine nations? If not, why not?
2. Study the diagram on page 235 which shows the profile of the Swiss Alps. What is the lowest elevation? What is the highest? See if you can explain why Switzerland is rich in hydroelectric power.

III. THOUGHTFUL CORNER

1. Why can Swiss people say that there is no real poverty in their country? Do you think it would be possible to say the same thing in our country?
2. Why do many people feel that Swiss banks are the safest in the world?
3. How are the problems of Austria different from those of Switzerland?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. Organize an imaginary Alpine expedition to explore the Matterhorn. What equipment will you need? What are the dangers of mountain climbing? Dramatize your expedition for the class.
2. Both Swiss and Austrian people love music. Find out what you can about Alpine horns, Swiss yodeling, and folk singing and dancing in the Alpine Lands. Present an exhibition for the class.
3. Pretend you have just started a travel agency and are trying to increase tourist trade to the Alpine Lands. Make large travel posters emphasizing all the tourist attractions of these regions.

B. Readings

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CHAPTER 13 Southeastern Europe

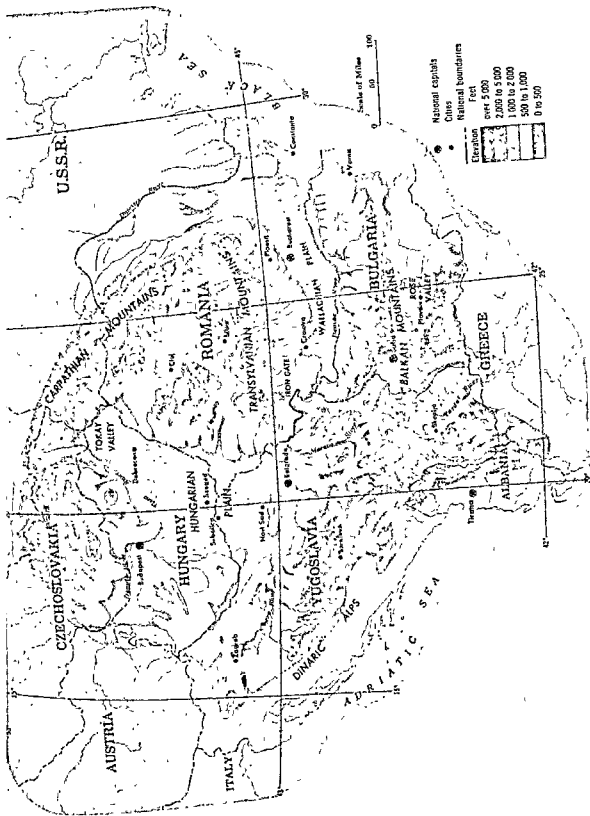
Southeastern Europe centers on the Danube River, one of the most important rivers in history. From Vienna, the Danube flows through Hungary and Yugoslavia to form the boundary between Romania and Bulgaria. The map on page 247 will help you locate the lands of this picturesque region. They all lie on or near the Balkan Peninsula.

The lands around the Danube have two large plains separated by high mountains. From a source in the Black Forest of Germany, the Danube flows eastward through Vienna and across the Hungarian Plain. On the eastern edge of the Hungarian Plain, the Danube cuts through a pass in one of the mountain ranges to reach the Walachian Plain and then goes on to form a wide delta on the Black Sea. You can see from the map that many large tributary rivers join the Danube. Some of these rise in the mountains to the south, others in the northern ranges.

If you follow the Alpine Arc southeastward through the Dinaric Alps and into the Balkan Mountains, you will have traced the southern edge of this region. Now locate the range that lies north of the Danube. Though important, this range is lower and less rugged than the Alps. Its ridges run east and south, then hook westward to cut the Danube River Basin into its two plains. The main part of the range is called the Carpathian Mountains. The hook at the bottom is called the Transylvanian Alps.

Between the Transylvanian Alps and the Balkan Mountains, the Danube River flows in a deep gorge known as the Iron Gate. The Iron Gate lies on the border between Romania and Yugoslavia. Where the Danube flows into the Black Sea, the river forms a delta covering about 1,000 square miles. This delta is a wilderness of swamps and marshes through which the distributaries slowly flow, carrying large quantities of silt.

The Danube River and the lands along its banks have been the center of major events in history. The river provides a route from central and western Europe to the areas around the Black Sea and to the Asian lands beyond. The people who settled there have not been quite so fortunate as many other Europeans. Like the bridgelands in the desert lands, the Danube lands have often been invaded and conquered. You will remember reading in the last chapter about the importance of Vienna at the northwestern edge of this region. Vienna has always been a major trade center because the Danube is navigable from this city all the way to the Black Sea.



Land Use in Southeastern Europe. The Hungarian and Walachian plains lie in the Danube River Basin. These broad, level plains have a long growing season. However, the rainfall in Southeastern Europe is not regular, and droughts occur rather often. In the western parts of the plains, the rainfall is heavier, and farmers in Hungary and western Romania can grow corn successfully. Eastern Romania, on the edge of the Walachian Plain, has a belt of porous limestone soil. This soil soaks up the little rainfall so quickly that efforts to farm the land bring poor returns. The people in eastern Romania depend mostly on grazing.

The two plains of the Danube River Basin have good soils. Rich black soil with large amounts of humus covers much of the plains. The river and some of its tributaries overflow their banks. These flood-plain areas are fertile but marshy. Good farm land is being reclaimed from the Danube flood plain by draining off excess water and strengthening the walls of the river along the banks. Fast-growing trees are planted along the river banks to absorb water and help to prevent marshes.

Farmers on the Hungarian Plain used to grow wheat on estates belonging to wealthy landowners. At the end of World War I, the estates began to be broken up into small farms, which did not prove profitable. When the Communists came to power, a system of collective farming was forced on the small landholders. Collective farms are run by officials appointed by the government. The collective organization decides how the land is to be used and what crops may be grown, provides heavy farm machinery, and sets the prices to be paid to the farmers. The officials of the collective, not the farmers, own and sell the crop. The farmers are paid according to how much they produce. The small farmers on the Hungarian Plain had little choice when collective farming was introduced. They were more or less forced to work under the new system or give up all claim to their land.

The wheat-growing collective farms have not proved efficient. In many places they have already been replaced by smaller farms. Where the small farmers are allowed to decide what crops they will grow, they have often changed from wheat to corn. They consider that corn is better suited to their small farms, since it does not require machinery to harvest it. Today corn is the leading crop in the Danube River Basin. However, the collectives still produce a great deal of wheat, some of which is exported.

Farmers in parts of the Danube River Basin specialize in certain products. In the western part of the Hungarian Plain, many crops are grown for industrial purposes. For example, sugar beets are cultivated for sale to sugar factories, and potatoes are grown for factories producing alcohol and starch for industry. Other

These Romanian fishermen in the delta of the Danube River are returning home with their barge loaded with a good day's catch. (Eastfoto)





The sweet red peppers used to make paprika are first strung and dried. Later they are seeded and crushed. (Eastfoto)

farms in this area grow vegetables, peppers, apples, and grapes. The Tokay Valley in the northeast has become world-famous for its vineyards. In the dry or sandy areas, fields of hardy rye and oats take the place of corn and wheat.

You saw last year that the semiarid plains areas in Anglo-America are used for cattle grazing. This is true also of the dry eastern land of the Hungarian Plain. Some farmers grow rice in irrigated fields, but generally the drier areas produce meat, leather, and dairy products.

Many industrial crops are grown on the Walachian Plain to the east. Instead of potatoes and sugar beets, farmers in this region grow plants that produce vegetable oils. Sunflowers, rapeseed, soybeans, and castor-oil plants are common. The seeds of all these plants contain oils that can be used for cooking or for industry. They are used in soap, paint, printing ink, oil cloth, and other special products. Most of the flax grown on the Walachian Plain is crushed to extract its oil, although some flax fibers are woven into cloth.

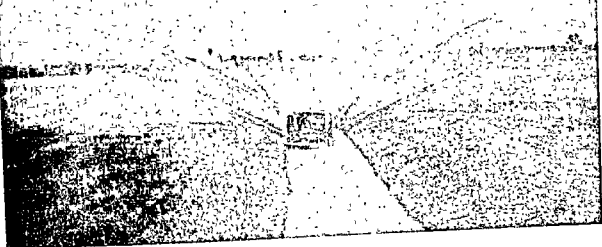
Farming Villages. In Anglo-America, farmers live in houses on their farms. In the Danube River Basin, people live in the villages and go out to their farms each day to work. In the past this was necessary. Villagers could defend themselves more easily if they lived together. Today this living arrangement has led to many serious problems. Farmers lose valuable time traveling from village to farm. This is very wasteful, since many of them own a number of fields distributed around the village.

The villages are ringed closely by vegetable or fruit gardens because these need the most attention. Beyond them the grain fields extend two to four miles. Beyond this tilled land lie the pastures. There are a few outlying farmhouses in some sections. These farmhouses have all been built rather recently, and they are still rare. Most farmers, even those in the collectives, live in the villages.

Some farmers have never owned the land they work. In the past, their farms belonged to landlords. Now the farm laborers often work on the collective farms run by Communist Party officials. Because of these conditions and also because the Danube Basin has been a battleground for centuries, the people of this rich plain are not prosperous. Except around Budapest and in northeastern Yugoslavia, the farm workers have little machinery. In Romania and Bulgaria only the simplest hand tools are used. Large areas of good farm land are left for grazing because farmers cannot afford seed and tools. On the other hand, some strips of dry land are used for crops because they are too small for grazing.

Horse-drawn plows are still common in Southeastern Europe. (*Tessore from Shostal*)





On a Hungarian state farm a floating vessel sprays water to irrigate the crops. (Eastfoto)

Except in Hungary, the villages seldom have more than four or five hundred residents. In very few areas outside Hungary are there regularly established schools. The village church has been for centuries the center of village activity. According to long-standing custom the people of a village nearly all belong to the same religion. Thus there are villages where almost everyone is Catholic, others where they are all Greek Orthodox, and still others where the whole population is Protestant. In those parts of Yugoslavia and Bulgaria once held by the Turks, there are also villages where the people are all Muslims. In Romania and Bulgaria the Greek Orthodox Church is strong. Here, there are few Roman Catholics and still fewer Protestants.

The most obvious difference between farm life around the Danube and farm life in our own country is the standard of living. Electricity, central heating, automobiles, telephones, and television are all quite common in American farmhouses. In the Danube River Basin they are so rare that they attract attention. Roads are poor, and draft animals are still more common than tractors even in the better-developed sections.

Minerals and Industries. Two important minerals have been found on the plains. Hungary and Yugoslavia have large supplies of bauxite. The ore is mined for export as well as for a small local aluminum industry. Romania has one of the world's most important oil fields around the city of Ploesti. Western Europe used to depend on Romanian oil for much of its fuel, but World War II caused western oil trade to shift to the Arab countries. During the war, the Germans seized the Ploesti fields and the nearby refineries to fuel their tanks, trucks, and airplanes. Later in the war, Allied bombers crippled the wells and refineries. Today the refineries have been rebuilt. The oil they refine is used in all the Danube countries. Oil is also piped to the Black Sea for shipment to other markets.

Hungary, Yugoslavia, and Romania have many other minerals, including iron, copper, lead, and zinc. Until recent years, most of the minerals that were mined were exported to other countries. Today the Communist governments are trying to build up industry in this region. Steel factories have been built along the rivers, close to iron and coal deposits. Many small factories now manufacture products for agriculture and industry.

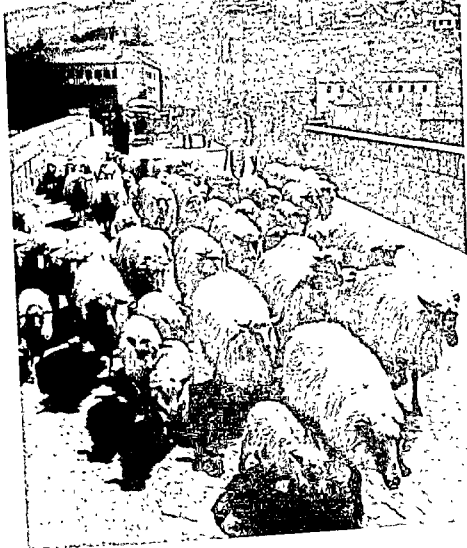
From the length of the Danube River you might think that there is a great deal of water power for hydroelectricity. But the slope of the land over which the river flows varies. Near the Iron Gate, the flow is swift and steep; across the plains the river moves slowly, on a gentle slope. At the German-Austrian border, the Danube is less than 1,000 feet above sea level. It travels over 1,200 miles to the Black Sea, dropping less than one foot in a mile. The volume of water is high, however, and elaborate plans are being carried out for hydroelectric power and irrigation above Vienna. Two dams have already been completed.

The Mountainous Lands. So far we have given our attention to the crowded Danube River Basin. In the past the mountainous parts of the Balkan Peninsula were also important. In the mountains the people could hide and defend themselves. They often fled into the mountains to escape invading armies.

The mountains are broken into ranges with valleys running in different directions. Many small national groups took refuge in these valleys and cut themselves off from the people outside. These groups were proud of their own way of life and developed their own languages and customs. It has been difficult for these peoples to unite into nations. As a result, progress has been slow in the mountain lands of Southeastern Europe.

Because they have been so isolated, people in the Balkan mountain regions have even more problems than those on the Danube Plains. Less than half of them can read and write. The number of languages in the Balkan countries is another barrier separating groups of people. Primitive farming methods produce barely enough food to keep the people alive. Transportation is very difficult. All-weather roads are rare in these mountain areas. Yugoslavia has done more than any other country in the Balkan area to improve roads and transportation. Find the Morava and Vardar rivers on your map. The Yugoslavs control an important overland transportation route through the valleys of these rivers. This route connects the Greek seaport of Salonika with the Danube Plains.

Little grain is grown in the mountainous regions. In some areas, fruit trees have been planted on the steep land. Cattle are grazed in the lower sections, and sheep and goats are found higher on the



The shepherd has come down from the hillside farm to take his sheep to market. (Monkmeyer)

slopes. Sheepskin is a common material for winter clothing in these sections. Sheep's milk is made into a cheese-like food which is called yogurt. Yogurt is a nourishing item in the diet of the people in these highlands.

In the mountain areas of Yugoslavia, Romania, and Bulgaria, forest industries provide a living for many people. Large amounts of lumber are exported from Romania, which has fine forests of oak, ash, and beech trees. In Bulgaria, charcoal is made from local wood.

Bulgaria also cultivates several special crops. Vast numbers of roses are grown in the Rose Valley of southern Bulgaria. These roses are grown not for decoration or for beauty, but for the oil in their petals. This oil, called attar of roses, is an ingredient in perfumes. Over 200 pounds of rose petals are needed to produce one ounce of oil. Bulgaria produces about 2,000 ounces of oil per year, mainly for export to France.

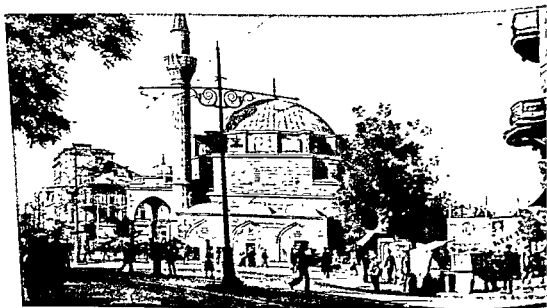
Tobacco, a crop that also requires much labor, is even more widely grown than roses in the valleys of southern Bulgaria. Tobacco is Bulgaria's chief export.

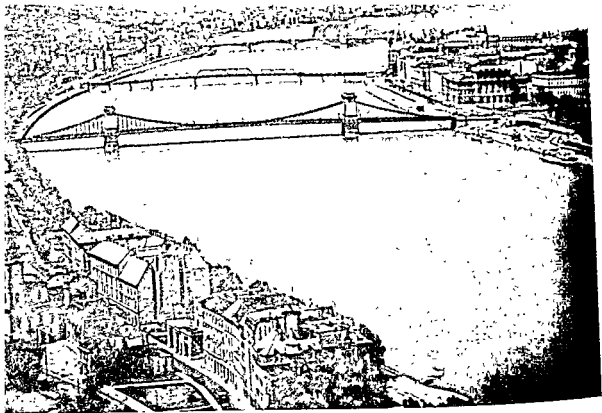
Cities of Southeastern Europe. Because there is not much industry in the region, Southeastern Europe does not have many large cities. The few large cities are capital cities or river ports.

Budapest, Hungary's beautiful capital, was once two cities. Buda, the older city, was built around a Roman fort on the hilly western bank of the Danube. For centuries it was the center of government. Pest, the newer city, is on the eastern bank where it has spread out over flatter ground. It has many fine churches and museums, and a university and opera house that rival those of Vienna. This newer part of Budapest has become a commercial and industrial center.

Today, Budapest is the only important industrial city in this region. With over a million people, this center of a railroad network is also a major port on the Danube. Budapest's grain elevators mark it as the largest flour-milling city in Europe. Its iron and steel works and manufacturing plants are the most important in the region. Food processing plants, leather and shoe factories, sugar refineries, and breweries are also located in this city.

Sofia was under Turkish rule for 500 years and the Muslims built many mosques there. (*Ewing Galloway*)





Budapest is the largest city in South-eastern Europe. The older city of Buda is connected by bridges to the newer city of Pest. (Eastfoto)

Bucharest, the capital of Romania, was established some distance from the Danube. It was built up as a government city and a center of cultural activity. The wealthy landowners of Romania who lived here made Bucharest a beautiful city. Some light manufacturing is carried on in the city, but few of the articles made in the country are exported.

Sofia is the capital of Bulgaria. One of Sofia's most imposing buildings is a mosque, a reminder of its past as a Turkish city. It is a rather small city, known chiefly as the seat of its country's government. Although not on the Danube itself, Sofia is located where several smaller river valleys meet. It has become the railroad center of its region. Of all European nations, Bulgaria has the smallest proportion of city dwellers. The small size of its capital city shows that Bulgarians prefer rural to city life.

Other cities in this region serve only as sea or river ports or as centers for special activities. For example, Floesti in Romania serves as a petroleum center. Plovdiv in Bulgaria is the rose-oil center of that country.

In the region you will study next, you will see farming areas that are much more advanced than those of Southeastern Europe, areas of rich mineral resources, and large industrial cities. It will be interesting to compare this region with the one you have just studied.

WORKSHOP

I CHAPTER REVIEW

A. Terms to Know

Iron Gate
porous soil
collective farm
efficient

draft animal
yogurt
attar of roses
Serbian

B. Places to Locate

Hungarian Plain
Wallachian Plain
Dinaric Alps
Balkan Mountains
Carpathian Mountains
Transylvanian Alps
Tokay Valley

Ploesti
Salonika
Budapest
Belgrade
Bucharest
Sofia
Plovdiv

C. Review Questions

- 1 Why haven't the people of the Hungarian Plain harnessed the Danube for hydroelectric power?
- 2 How have traditional methods of farming caused serious problems for modern farmers of the Danube Plains?
- 3 How do you account for the poverty of the people who live in the rich agricultural plains of the Danube?
- 4 Why did some people of the Danube Plains move to the mountainous regions of the Balkan countries?
- 5 How has the terrain of the mountainous regions of the Balkan nations influenced farming methods and choice of crops?

II OBSERVATION ROOM

- 1 Name the countries through which the Danube River flows. Which countries use the Danube as part of their border?
- 2 Do some research to find out the cities named in this chapter which have populations over 1 000 000. Name the cities with populations between 500 000 and 1 000 000.

What reasons can you give for the fact that there are so few large cities in these regions?

III. THOUGHTFUL CORNER

- 1 How have the Landforms of Southeastern Europe influenced the formation of separate nations and languages?
- 2 What does Belgrade mean? Why was it named this? Name other cities that have been named because of unusual landmarks in or near them. You may start with Salt Lake City, Utah, and Tombstone, Arizona.
- 3 Why is Budapest called a "twin city"? See if you can locate the twin cities on the Mississippi River in Minnesota.

IV RESEARCH DEPARTMENT

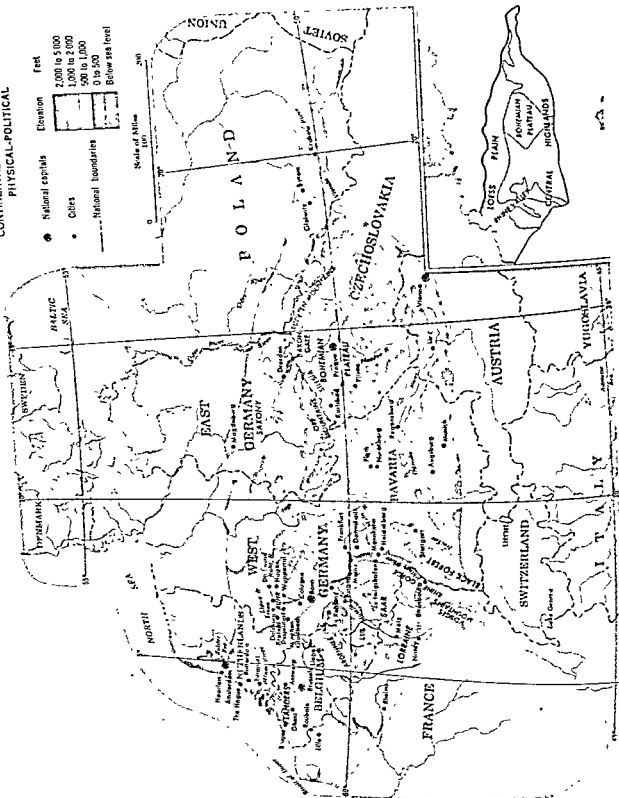
A. Geographers in Action

- 1 The music of the people of Southeastern Europe is full of life and the story of its people. Prepare an illustrated report, with record selections on one of the following: Johann Strauss, Anton Dvorák, Wolfgang Mozart, Franz Schubert, Béla Bartók.
- 2 Prepare a display showing the commercial importance of roses or some other flower.
- 3 Draw a diagram or make a model showing a typical Danube River Basin farming village and its surrounding lands. Label with flags the crops in the fields, the trees, and the livestock. Some pupils may wish to add figures of men and women on their way to or from their fields.

B. Readings

Deutsch, Rabelle. *More Tales of Karanay Folk*. New York: Harper & Row, 1963.
Kish, George. *Yugoslavia*. New York: Holiday House, 1952.
Seredy, Kate. *The White Stork*. New York: Viking Press Inc., 1957.
Tammenbaum, B., & Stillman, M. *Charting the Land, Sea, and Sky*. Chicago: Whittlesey, 1957.

CONTINENTAL INDUSTRIAL REGION.
PHYSICAL-POLITICAL



The Continental Industrial Region

Your study of the lands around the Danube has shown you one of the less developed areas of Europe. Now we are going to study a region that is much more complex. Look at the population map on page 222. Notice the finger of high population density pointing eastward from the English Channel. From it a smaller finger points southward along the Rhine River Valley. This area of dense population is the heart of the Continental Industrial Region. Here the people have used the good soils, the water power, and the abundant minerals to build up one of the world's greatest manufacturing areas.

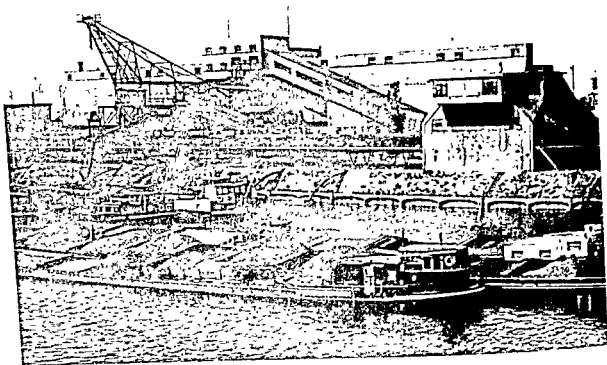
Throughout the Continental Industrial Region cities and towns crowd closely together near coal and iron mines. Farms and factories squeeze together to provide food and employment for millions of people. Beautiful churches and public buildings, large, up-to-date schools, and modern transportation systems show the prosperity of the people who live in this region.

A FIRST VIEW OF THE REGION

The Continental Industrial Region extends eastward through Belgium, the Netherlands, Luxembourg, northeastern France, central Germany, southern Poland, and western Czechoslovakia. Most of the region is occupied by the highlands that lie north of the Alps. These mountains, lower than the Alps, are called the Central Highlands.

Along the northern edge of the Central Highlands is a plain with very fertile soil called *loess*. This plain is known as the *loess plain*. To the north and east it joins with the less fertile northern plain, which we will study in the next chapter. The loess plain is quite narrow, but it is very important to the region. From this fertile highland border the Rhine River Valley forms a corridor which penetrates southward into the Central Highlands. The Rhine is a busy water highway connecting the Central Highlands with the ports on the North Sea.

Industrial Cities From the North Sea you can trace a long chain of cities along the boundary between the loess plain and the Central Highlands. Most of these cities are industrial. Along with



Duisburg, on the Rhine River in Germany, has the largest inland harbor in Europe. (United Nations)

the cities in the Rhine River Valley to the south, they lie in the very crowded region mentioned at the beginning of the chapter. The rivers and the mineral deposits supply power and raw materials for industry. The fertile loess plain at the edge of the highlands produces great quantities of food for the factory workers. This belt of industrial cities is so important that we call it the "Power Belt" of Europe.

Industries of the Power Belt. Heavy industry, such as steel manufacturing, requires vast quantities of coal, iron ore, and water. Rivers supply water for power all along the edge of the Central Highlands, but the minerals are close together in a few small sections. If you look at the map on page 264, you will see that the western part of the Continental Industrial Region produces the most steel. The tiny country of Luxembourg is right in the center of this area, which includes parts of France, Germany, Belgium, and the Netherlands.

Notice that the German area called the Ruhr produces the most coal, while the French area called Lorraine produces the most iron ore. Scattered between these two centers are many smaller but important coal- and iron-producing centers. Steel plants use the coal and iron to make this the greatest center of heavy industry in Europe.

Oil refineries also produce power for Europe's industries. Many factories in this region use steel to make products such as railway locomotives, automobiles, and other machinery. The coal and other minerals are also used in a large chemical industry.

Eastward from this heavy-industry area, East Germany, Poland, and Czechoslovakia also have centers of heavy industry. Many of the cities, however, have light industries such as manufacturing of textiles and electronic equipment. Although they need no coal or iron, these industries, too, require water power, raw materials, and thousands of skilled workers.

Climate. In the center of this region, the marine west coast climate merges gradually into a continental climate. You learned last year that the Interior Farm Lands of Anglo-America have a continental climate. Winters are colder and summers are warmer than those in the marine climate. The weather is more changeable. Heavy showers are followed by intervals of clear, sunny days. People in the eastern parts of the Continental Industrial Region seldom get the weeks of rainy weather that people have farther west.

How We Will Study This Region. We will study this region in three parts. First we will take a look at the way people live in the Central Highlands, which make up most of the region. Then we will see why the fertile loess soils of highland borders are so valuable to the economy of the region. Finally, we will learn why this is one of the busiest industrial areas in the world. With the growth of the Common Market, which you read about in Chapter 11, it will become even more important as time goes on.

Like children everywhere, these Czechoslovakian children enjoy coasting down a snowy hill. (Eastfoto)



THE CENTRAL HIGHLANDS

Trace the highland part of this region from northeastern France to Czechoslovakia. Notice that the highlands do not form one long chain. They are divided into smaller ranges, most of them below 3,000 feet. Like the Appalachians, they are old, worn-down mountains.

When you recall that this is a densely populated area, you may be surprised that the Central Highlands still remain heavily wooded. The people who live here have learned that the soil is thin, rocky, and infertile. They gain a better livelihood from good timber than they would from the poor farm land. The highland people get most of their food from the loess plain. In return they supply the farming districts with lumber and manufactured products.

How the Highlands Were Formed. The Central Highlands are a belt of low mountains, plateaus, and valley-corridors that stretch across Europe between the Alps and the northern plains. They are much older than the Alps. Over many millions of years, wind, rain, snow, frost, and rivers have worn them down to the present heights. These mountains have rounded, worn-down slopes rather than high rugged peaks.

Many side effects were felt in the Central Highlands when the Alps were formed in the south. Rock melted by intense heat deep within the earth oozed up from lower layers in the earth. Some of this rock reached the surface through volcanoes. The volcanoes in the Central Highlands are not active like Etna or Vesuvius in Italy. They stopped erupting many thousands of years ago. The hot, liquid rock under the crust of the earth contained many minerals. As it pushed its way up through these ancient volcanoes, the rock often hardened. Many deposits of iron, silver, gold, copper, and uranium in the Central Highlands were formed in this way.

The Central Highlands are separated into blocks by lowland corridors or river valleys. Both travelers and invaders have followed routes along these corridors and valleys. Many towns began as stopping places for traffic through the mountain corridors. Castles and fortresses standing on heights that seem almost impossible to reach are reminders that the local people were often forced to defend themselves.

Highland Industries. Since the mountain lands are not good for farming, the people who live in the uplands learned long ago to make use of other resources. Men became skilled in a number of different crafts. The many trees of the Central Highlands provided fuel, and wood for wood carvers. Iron and copper were used



by metalworkers, and silver and gold by jewelers. Some of the products made in their small workshops became very famous, and in the Middle Ages were bought by merchants from many parts of Europe.

People of the Central Highlands became particularly well known for their skill in carving and shaping wood into furniture, toys, clocks, and musical instruments. The wood carvers are craftsmen who take great pride in their work. Their skill in wood carving has been passed down from generation to generation. There are many small toy and wood-carving factories in Germany's Black Forest on the east bank of the Rhine. Paper is also made from wood, especially on the Bohemian Plateau.

Other men in the Central Highland region learned how to produce woolen textiles. At first the spinning and weaving were done in the homes of the workers. Then during the Industrial Revolution machines were built to do much of the work. The early machines were driven by water wheels, and many small factories were built near streams in the Central Highlands. The streams of the Central Highland region were especially good for these early industries. Their swift falls provided water power, and their clear

Violins and other stringed instruments made by hand in Bavaria are among the world's finest. (Forbert from Shostal)

CONTINENTAL INDUSTRIAL REGION: IRON AND COAL DEPOSITS



fresh water was very useful for cleaning wool. Many of these old textile centers have been modernized. Water power has been replaced with coal and hydroelectric power.

Glassmaking is another old industry that has survived in parts of the Central Highlands. Glass is made from sand mixed with lime, soda, and other materials. The mixture melts when heated and becomes glass when it cools. The Black Forest, the Ardennes, and Bohemia were all glassmaking centers in early times.

Coal has gradually replaced wood as fuel in glassmaking. Many glassworks that are not near coal deposits have closed down. Cities that can obtain coal specialize in high-quality glass products such as lenses and cameras. The amount of raw material used in glassmaking is small, but the patience and skill required make the glass products extremely valuable.

The Bohemian Plateau. Locate on your map the high, rocky area called the Bohemian Plateau. It is not exactly like the rest of the Central Highlands. The Bohemian Plateau is also called the Bohemian Highlands. The plateau consists of a huge block of high rock that has not been deeply broken up into mountains. It is nearly diamond-shaped and is bordered by mountain ranges. On the southwest is the Bohemian Forest. On the northwestern rim are the Ore Mountains. The Sudeten Mountains to the north-east form a third border of the plateau.

The section of the plateau between the Sudeten Mountains and the Ore Mountains is known as the Bohemian Basin. The



The farmhouses in the fertile green valleys of the Bavarian Alps are picturesque and comfortable. (Nutter from Shostal)

Bavaria. In southern Germany, the Alps form the southern boundary of the section known as Bavaria. Bavaria is sandwiched between the Alps, the Bohemian Plateau to the east, and the Rhine Valley to the west. The Bavarian Alps are not so high or so rugged as the Austrian or Swiss Alps. They are among the most popular German resort areas. Tourists are attracted to Bavaria by its lovely scenery and also by its many ancient castles. Here, as in the other uplands of Germany, you will find men who carve beautiful wooden objects.

About half of Bavaria is forested and supports a lumber industry. Here, as in all parts of Germany, people are careful about cutting and replanting trees. Forest rangers prevent the spread of fires

and draw attention to disease or blight in the trees so that it may be controlled. Farming gives work to many Bavarians. There are many dairy farms. Crops include wheat, grapes for wine, and hops for beer.

There are several busy commercial and industrial towns in Bavaria. Of these, Munich, Nuremberg, and Augsburg are the most important. Munich has a rich cultural heritage. It is the largest city in southern Germany and is the main commercial center. Munich has industries of various kinds, but its main industry is brewing. Nuremberg, one of the oldest cities in southern Germany, is a toy-making center. This ancient city attracts many tourists as well as businessmen.

The Rhine Rift Valley. The upper part of the Rhine lowlands is called the Rhine Rift Valley. This valley is a long trough that extends northward from Basel as far as Bingen. It is about 20 to 25 miles wide and 180 miles long. The Rhine Rift Valley is much lower than the Black Forest on the east or the Vosges on the west. The Neckar and Main rivers join the Rhine in this section. In the southern part of the valley the Rhine separates France from Germany.

The soils of the Rhine Rift Valley are fertile, and the land is carefully cultivated. This is the only major area in Germany where the farms average as few as ten acres. The small farms look like market gardens rather than farms. The farmers do not live near their fields. They live in villages and, like their ancestors hundreds of years ago, journey to their fields every day. The only parts of the Rhine Rift Valley that are not cultivated are the strips of gravel and swamp along the banks of the river. These patches are generally wooded.

The Rhine Rift Valley is sheltered from the damp winds of the Atlantic Ocean by the Vosges. It has a drier and sunnier climate than most of northwestern Europe. The farmers grow wheat, potatoes, and small-farm cash crops such as sugar beets, tobacco, and hops. Vineyards cover the well-drained sunny slopes of the Rhine Highlands and the Vosges. From these vineyards come the famous Rhine and Alsatian wines.

While many people in the Rhine Rift Valley are farmers, many more work in the cities and towns. The valley has no natural resources for industry, but it is easy to import raw materials from other areas along the Rhine. The most important city is Frankfurt on the Main River. Frankfurt has many factories which use coal and steel from the Ruhr, which lies to the north. Products include machinery, electrical equipment, and precision instruments. Twice a year Frankfurt's businessmen hold a trade fair at which they show their products.

Mannheim, farther upstream, is an important producer of chemicals, precision goods, machinery, soap, steel, electrical and railroad equipment. Iron ore and coal are brought to the city in barges. Ludwigshafen, Mannheim's twin city, is on the other side of the river.

The Rhine Gorge. At its northern end, the Rhine Rift Valley narrows into the famous Rhine Gorge. Here the river flows in a winding, narrow, and steep-sided canyon. Roads and railroads run close to the river at this point. The Rhine Gorge is the part of the Rhine Valley that is so often seen in photographs and paintings. Old castles cling to cliffs overlooking the river. From these castles, barons and princes once controlled the traffic on the Rhine and forced those who passed to pay taxes.

Where the river bends eastward or westward, men long ago built stone walls to form terraces on the south-facing slopes. Soil was carried by farmers to these terraces so that vineyards might be planted. Today these sunny vineyards produce some of Germany's most famous wines. There is not much room in the gorge for industry. Koblenz at the mouth of the Moselle is the only large city. However, there are many small industrial cities and towns in the Rhine Highlands.

The hilly slopes along the Rhine are often terraced and cultivated. Here the vineyards reach almost up to the castle gates. (Monkmeyer)





THE LOESS PLAIN

The machine picks the corn separates the cob from its leaves and drops it in a trailer (Gen. Information Center)

The Central Highlands are bordered on the north and west by a fertile strip of land called the loess plain. The soils of this plain are among the most fertile in the world. On the western edge of the loess plain the loess soil becomes mixed with other types of soil, which are also good. North of the loess plain the soils become sandy and much less fertile. The very special loess soil is found only in this narrow strip along the highland border. It is very important to this part of Europe.

Next year you will learn that loess is found in great quantities in other parts of the world especially in China. Right now we will study the way people use the land of this highland border.

How Loess Was Formed During the Ice Age the ice sheet came right to the edge of the Central Highlands. As it melted the ice left great amounts of dirt and dust behind it. Northerly winds picked up the finer particles of dust and blew them southward. Since the wind could not carry the very fine dust particles over the mountains, it dropped them along the northern edge of the Central Highlands.

This narrow belt of fine dust was one of the first parts of Europe north of the Mediterranean Region where early man began to farm. This belt was then a region of open forest. Under the park-like stand of oak trees grass was sufficient for pasture. The loess soil enabled the early farming people to cultivate their crops with primitive tools that could not work heavy soils. As the population

increased, the trees were gradually cleared and the region became grassland, which it has remained for more than 3,000 years. The dying grasses add humus to the soil, making it very fertile. Even today, farmers find the loess soil easy to plow and much more fertile than the sandy soils to the north and south.

Crops of the Loess Plain. The loess plain is one of the largest wheat-growing regions in Europe. The wheat is grown in rotation with sugar beets, which are the second most important crop. Both wheat and sugar beets grow well in the loess soil. Sugar beets are very valuable to Europe because they save the cost of importing sugar cane from tropical countries. Also they are well suited to the mixed farming of the European farmers. In mixed farming, the farmer does not concentrate on growing one crop or raising one type of animal. Instead, he grows a variety of products. He finds that the sugar beet tops and the beet pulp left from the sugar factories make fine feed for cattle. Sugar beets also rest the soil, since they do not take from it the same minerals that are needed to grow wheat in the field the following year.

How Sugar Beets Are Grown. The cultivation of sugar beets requires a good supply of cheap unskilled labor. There is much to be done that a machine cannot do. Many men who are factory

Harvest time brings the whole family into the fields. (Monkmeyer)





workers and many women and children spend their summers and evenings in the fields making extra money. The beet plants sprout up so close together that there is not enough room for the roots. Women and children give space to the young plants by cutting out the extra ones. Chemical fertilizer manufactured in the cities is spread around the plants at this time.

As the beets grow, the workers repeat their trip through the fields. They allow the sturdiest plants to grow and carefully pull out all the others. Through the summer months the soil must be hoed several times. At harvest time the heavy beets must be pulled, topped, loaded quickly, and sent to the sugar refinery before they spoil. At the refinery the sugar is extracted from the beets, leaving a pulp that is returned to the farmer for cattle feed.

Flax in Flanders Flax is a specialty crop in the western part of the loess plain, which has a marine climate. Flax provides the fiber from which linen is made. The flax plant produces good fiber only in a cool, moist climate. At harvest time the plant must be pulled up by the roots so that the fiber will not be damaged. Because it is best if this is done by hand, many people are needed to harvest the flax.

Lying across the boundary between France and Belgium is a plain called Flanders. Flax has been grown in Flanders since

the Middle Ages. There was a large linen industry here in earlier times, when muscles and water were the principal sources of power. Today much of the flax industry has moved from the ancient cities of Flanders to industrial cities in nearby regions.

The Rhine Delta. One of the most important parts of the high-land border is the Rhine delta, which makes up most of the southern Netherlands.

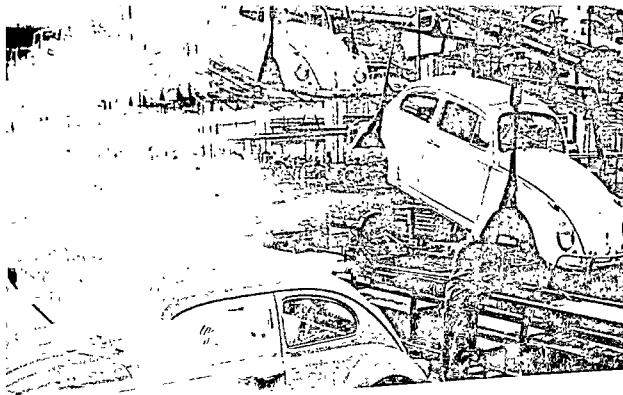
If we follow a coal barge downstream from the Ruhr coal field we come to Rotterdam, the largest port on the continent. It is also the second largest port in the world, second only to New York. Rotterdam has been growing very rapidly since the end of World War II. Since the old port cannot handle all the traffic, the Dutch are now building a new port at the mouth of the Meuse. This new port is called Europoort.

Rotterdam is really the front door to the Rhine Valley. It is the great seaport of the Rhine. Three fourths of the cargo brought in or taken out of Rotterdam is shipped by barges to or from industrial cities on the Rhine and its tributaries. Rotterdam is chiefly a commercial city. Ships of all nations call here. River barges flying the flags of the Netherlands, Germany, France, and Switzerland crowd its harbor. In recent years one of the largest oil refineries in the world has been built near Rotterdam.

Amsterdam, which is slightly larger than Rotterdam, has connections with the Rhine through a large canal, but it has relatively little Rhine trade. It is more of an industrial city than a port.

Small family-owned plants still produce some of Belgium's flax. (Henle from Photo Researchers)

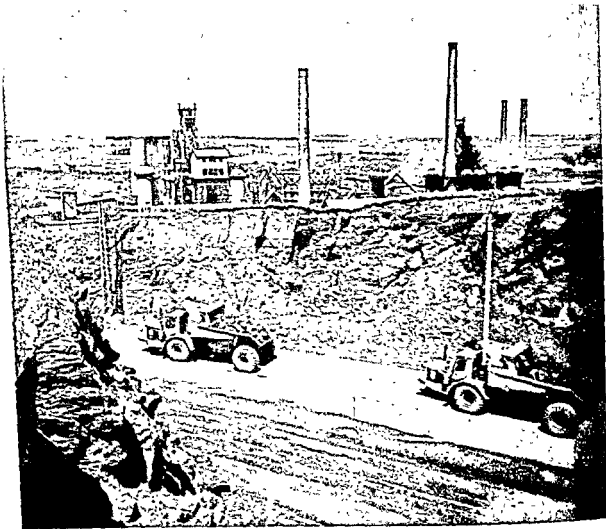




German-made automobiles are a common sight on American roads.
(German Tourist Information Office)

Imported Food. Although the highland border farms are productive, they do not produce enough food to feed all the people of the Continental Industrial Region. Before the Communists took over East Germany and Poland, the shortage was less severe. Then the farmers in these countries could grow food for the large cities of the west. In exchange, they received industrial products from the western cities. The Communists have stopped this exchange. West Germany, Belgium, the Netherlands, and Luxembourg must now import large quantities of wheat, meat, flour, and other foods from Canada, Australia, Argentina, the United States, and other countries.

To pay for food imports, the people of the Continental Industrial Region must export products made in their factories. Have you seen automobiles and cameras imported from Western Europe? Many are made in the large industrial cities of this region. Next time you are in a store, check where the clothing, rugs, carpets, shoes, china, typewriters, bicycles, tablecloths, cutlery, and silverware were made. Many of them were made in cities of the highland border. Because their wages are lower than ours, the people of this region can produce these goods much more cheaply than we can. Also, as a result of heavy wartime damage, many of the plants have been rebuilt in the last ten or fifteen years and are more efficient than ours.



Open-pit mining is the safest and easiest way to mine iron ore.
(Wolff from Shostal)

THE INDUSTRIAL REGIONS

Now we are going to take another look at this region. This time we shall concentrate on seeing the major industrial regions, where mines and factories almost cover the landscape. We shall see how these areas depend upon each other. We shall take an especially long look at the Ruhr, the most important of them all.

The Eastern Industrial Regions. When we studied the Bohemian Plateau earlier in the chapter, we saw that it was bounded by the Ore Mountains in the northwest and the Sudeten Mountains in the northeast. Just across the Ore Mountains lies the East German province of Saxony. Farther east on the northern side of the Sudeten Mountains is the Polish province of Silesia. Both are important industrial areas. Saxony has deposits of lignite, salt, and potash that support a large chemical industry.

You may remember from last year that lignite is a much softer coal than bituminous coal or anthracite. It does not make coke, the fuel used in steel mills. However, it has a high content of gas, so it is a useful raw material in the chemical industry. Because it crumbles and powders easily when shipped any distance, it is burned near the places where it is dug out of the great open pits. Lignite is used as fuel in steam-driven electric generating plants that supply power to nearby cities. It is also used for heating houses, for Europe does not have the rich deposits of petroleum that we have.

Since Saxony has only small deposits of hard coal, its steel industry is not very important. However, across the Polish border in Silesia lies Europe's second largest coal field. Silesian coal has been used for many years to supply coke for a large steel industry.

Germany produces great quantities of lime. Lime is used in the manufacture of steel and as a fertilizer. (German Information Center)



The Poles in Silesia also mine a great deal of zinc ore and smelt it for making galvanized iron and steel products. A great many workers in Silesia are of German descent, since this part of Poland used to belong to Germany.

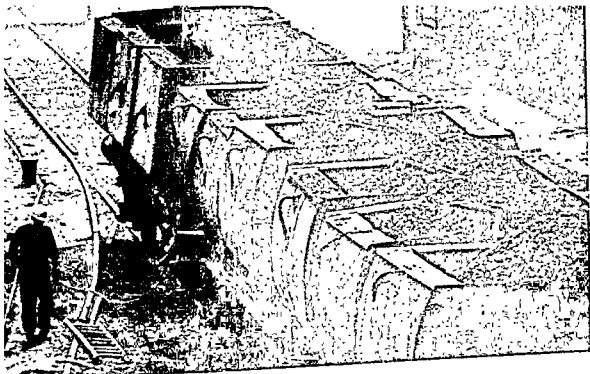
Saxony and Silesia both lie within Communist-controlled countries. Their industries, though important, do not have the advantage of free enterprise or the free trade of the Common Market. Now we will take a look at some industrial areas that do.

The Ruhr: Europe's Industrial Giant. Draw an imaginary circle around the cluster of big cities located where the Ruhr and Lippee rivers join the Rhine. Dortmund, Essen, and Dusseldorf are the biggest. You have just drawn a circle around the Ruhr, the greatest concentration of industry in Europe.

This great industrial center has grown up because of three things. First, it lies on the richest coal field in Europe. Second, iron ore from the rich deposits of the Lorraine field can be brought to the Ruhr down the Moselle and Rhine rivers. Third, the Ruhr and Lippee rivers supply plenty of cooling water for the Ruhr's many blast furnaces.

Dusseldorf is a modern and prosperous West German city. (German Tourist Information Office)





(Above) Coal is the great source of power for the vast industry of the Ruhr. (Caption from Rapha-Guilloumette) (Below) Cultivated land surrounds the coal heaps and factory chimneys in the industrial areas of northern France. (French Embassy Press & Information Division)

Industrial cities, such as Essen, have grown up on the Ruhr coal field. Some of these cities have grown so large that their edges meet. A pilot flying over the Ruhr would see smoky factories and houses for 40 miles. Nearly five million people live in these cities.

The steel mills are first in importance among the industries of this area. They produce steel bars and steel sheets that are used in the other factories. Wherever there is a steel mill, you will find many steel-using industries nearby. Automobiles, tractors, bulldozers, railroad cars, bicycles, and typewriters are made from steel. You are probably wearing zippers, pins, or buckles made of steel. Your ruler and notebook may also have some steel in them.

There are also important chemical plants in the Ruhr. They use the gases and tars released from the coal when the coke for the steel mills is made. Large new oil refineries are also supplying by-products for the chemical industry. Dyes, ammonia, plastics, and drugs are some of the chemical products of the Ruhr.

Textiles are manufactured at Wuppertal, München-Gladbach, and Krefeld. The old textile mills use coal to drive the looms, but modern factories use electricity.

Large quantities of the coal mined in the Ruhr are exported to other regions of Germany and Europe. Some of the coal goes



upstream to the industrial cities of Stuttgart, Frankfurt, and Mannheim in the Rhine Rift Valley. Some goes downstream to Rotterdam and Amsterdam.

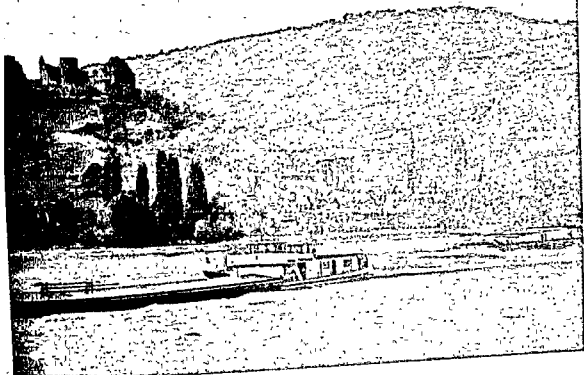
Dusseldorf is the economic center of the Ruhr area. Most of the large companies of West Germany have their central offices here. Fifteen miles farther up the Rhine we come to Cologne. Cologne was an important trade center as early as the Middle Ages. Its position where the Rhine Valley and the loess plain come together has encouraged industry and commerce. Cologne is famous for its cathedral, which fortunately escaped damage during the bombing of the city in World War II. South of Cologne is Bonn, the capital of West Germany.

Lorraine, Luxembourg, and the Saar. When you look at the maps on pages 222 and 264, you can see another steel-producing region. This region is the area marked by Lorraine, Luxembourg, and the Saar. Wars have been fought by France and Germany over possession of this valuable region, which has been owned by both countries. You can see this when you learn that many people in Lorraine speak German, even though Lorraine is in France.

By looking at the map, you can see that a huge iron field lies in Lorraine and stretches over into Luxembourg. You can see also that an important coal field lies across the border between Lorraine and the area of Germany called the Saar. With iron ore and coal in abundance, no wonder that this area has important steel, metal, and chemical industries. The iron ore mined in the Lorraine field of France is especially important. Millions of tons of it are shipped down the Moselle and Rhine rivers to be used in the Ruhr steel mills. In return, coal from the Ruhr is brought up the rivers to add to the coal supplies of this area and help feed its hungry furnaces.

The Franco-Belgian Industrial Area. Northeast of the iron ore field of Lorraine, many steel factories have been built. This industrial area stretches westward across the border between France and Belgium and includes the plain known as Flanders. The steel factories are here because they lie on a large coal field. This coal field is called the Franco-Belgian coal field, and the area is called the Franco-Belgian industrial area.

Looking at the map again, you can see that iron ore for the factories of this region does not have far to travel from Lorraine. Iron from Lorraine and coking coal from the region's own fields supply the steel mills, metal factories, and chemical factories of the Franco-Belgian industrial area. Glassmaking is also an important industry. Galvanized iron is a specialty of the Belgian section of this area.



The Rhine River serves as one of the main transportation routes of the Continental Industrial Region. (Greene from Shostal)

The Franco-Belgian industrial area extends to the north of Liege. Here Germany, Belgium, and the Netherlands share a coal field called the Limburg coal field. The coal lies very deep, as much as 3,000 or 4,000 feet below the ground. The seams are thick and easy to mine. Because the mines are the newest in Europe, they are large and efficient. The factories which have been built on the new coal field are also large and modern. They produce explosives, chemicals, and glassware. If you visit one of the mines here, you find the miners speaking German, French, Walloon, Flemish, and Dutch.

You already know that the part of this region called Flanders has an important textile industry. During the Middle Ages, Flanders was famous for linens, laces, and woolens. Today these textiles are made in modern factories in the cities of this region. Most of the goods are exported through the port of Antwerp.



A FINAL LOOK AT THE CONTINENTAL INDUSTRIAL REGION

We have just studied the largest industrial region in Europe. Its most important physical regions are the Central Highlands and the narrow plain of loess soil that bounds the highlands on the north. We have seen that the fertile soil of the loess plain helps to feed the many industrial workers of this region. We have also seen how the people have used their skills to turn their many natural resources into goods that are sold all over the world. In the next chapter we shall study a region of Europe that is less industrial, but in many ways no less important.

(Left) Skilled labor and light industries add to the prosperity of the Central Highlands. (German Tourist Information Office)

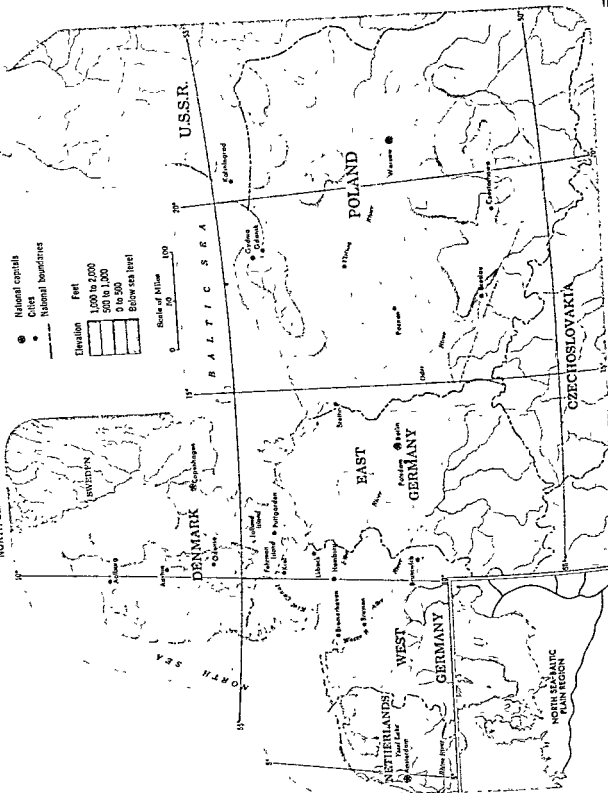
Hummel figures made in Germany can be bought in shops of all lands. (Henle from Photo Researchers)



(Below) Many by-products of coal have helped the vast chemical industries of the Ruhr to grow. (German Information Center)



NORTH SEA-BALTIC PLAIN: PHYSICAL-POLITICAL



The North Sea-Baltic Plain

Europe's several peninsulas are isolated from the interior by mountain ranges. Mountain barriers divide the interior into numerous inland plains or basins. The North Sea-Baltic Plain is Europe's only large stretch of lowland. This plain is 900 miles long and 350 miles wide at its widest point. Outside the Soviet Union, this is the largest plain in Europe.

This vast level area includes all of Denmark and parts of the Netherlands, Germany, and Poland. Throughout its length it is a sandy, gravelly plain with frequent patches of bog and poorly drained land. About half the land is forested. In a flat region where the climate is suitable for agriculture, such a high percentage of woodland is a sign of poor soil. The farmers specialize in cattle and pig raising and in dairying. They grow whatever food crops the poor soil will produce.

Power resources and minerals are limited on the North Sea-Baltic Plain. Therefore, while there are some important centers of industry and commerce, there are no large concentrations of industry. The population is more rural than urban.

To the south, the lowlands of the North Sea-Baltic Plain merge with the loess plain that lies north of the Central Highlands. There is a marked difference between these two lowland strips. The belt of fertile loess soil has a dense population and many farms. The North Sea-Baltic Plain, on the other hand, has poor sandy soil and woodlands. The wheat and sugar beets of the loess give way to rye and potatoes on the sandy lands of this region.

The eastern boundary, where the North Sea-Baltic Plain meets the western boundary of the Soviet Union, is low lying and marshy. There are some strips of higher ground both to the north and the south, where the plains merge into one another. The extensive marshes, called the Pripet Marshes, have served throughout history to hold back invading armies which were forced to move north or south around them.

The Domain of the Sea. The sea forms the boundary of the North Sea-Baltic Plain on the north and west. From the Strait of Dover to the Gulf of Finland the coast of Europe is low lying. Strong waves sweeping into the shallow water have built sandy barriers, with shallow lagoons between them and the land. The barrier beaches show up on the map as long, low, narrow islands parallel to the shore. In some places, winds from the North Sea have piled the sand from the barrier beaches into dune ridges along the coast. These sand dunes can be a threat to the farm

land behind them, because the strong sea winds may carry the sand inland.

The sea has invaded the land along most of the coast of the North Sea-Baltic Plain. The mouths of the rivers form shallow estuaries which geographers call *drowned estuaries*. These river mouths are almost blocked by sand bars built up by the waves. The low-lying land along the estuaries and around the coastal lagoons is often marshy. At times it is hard to see where the land ends and the sea begins.

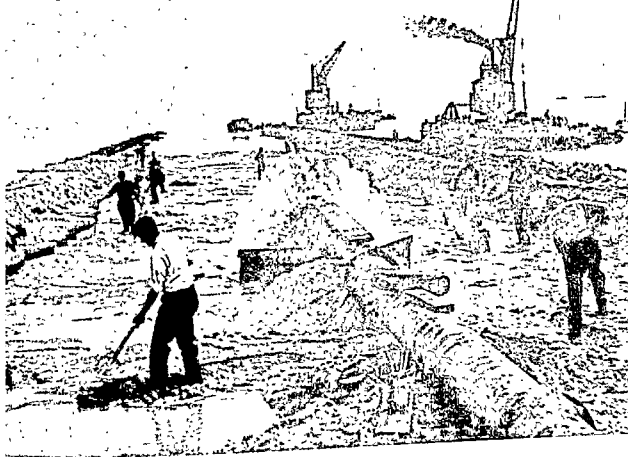
Foggy, misty, or rainy weather is usual for many months of the year along this coast. Salt spray, swept in over the land by strong westerly and northwesterly winds, strengthens the feeling that this is more the domain of the sea than of the land. However, the sea is not allowed to go its way unchallenged. Along the North Sea coast from Belgium to Denmark, for centuries men have been creating new land. They have done this by drainage and by building walls, called dikes, to hold back the sea. The Rhine River also has been adding to the land by depositing silt where the river empties into the sea. This land is called the Rhine delta.

Physically the Rhine delta is a part of the North Sea-Baltic Plain. But the Rhine ports and Rotterdam, as you have learned in the last chapter, are the trade ports for the Continental Industrial Region. The Rhine delta can be thought of as an area belonging to both the Continental Industrial Region and to the North Sea-Baltic Plain.

Plains Formed by Glaciers. The landforms and the generally poor soils of the North Sea-Baltic Plain are the result of the action of glaciers. You read in Chapter 10 that during the great Ice Age a sheet of ice spread over northern Europe. The land formerly covered by this huge glacier is now Norway, Sweden, and Finland. The ice spread almost as far south as the Central Highlands, scraping off the soil down to bedrock. In some places the ice even gouged out great basins in the rock itself.

When, after the Ice Age, the climate began to warm up again, the edge of the glacier began to melt. As the ice melted, it deposited the soil and rocks it had picked up. Some of the clay, sand, gravel, and boulders dropped by the melting ice piled into low, knobby hills called *moraines*. Moraines extend across the North Sea-Baltic Plain from east to west in a series of great curves. Hollows in the hills filled with water to form numerous ponds and lakes. There are many such hills and hill lakes in northern Poland and in northeastern Germany.

When the ice melted, it deposited silt, sand, and gravel at its outer edges. The deposited silt formed a good soil. The areas where the sand was deposited are not good farm lands, and the



road gravel stretches in the west are least fertile of all. Today they are heath or moorland covered with stunted, scrubby vegetation. The moraines, where they are not too rough and stony, are fairly fertile because of the greater amount of clay in the soil.

On the North Sea-Baltic Plain in general there is much more poor than good land, and the land in the west is poorer than the east. However, the marine climate of the west is more favorable to agriculture than the continental climate of the east with its longer winters.

Men and machines work long and hard to reclaim land along the coast of the Netherlands. (Netherlands Information Service)

FARMING ON THE NORTH SEA-BALTIC PLAIN

Rye—a Hardy Grain Crop. Rye was once considered a weed in the fields of wheat and barley. Then some clever housewife ground the rye into flour and made rye bread. Gradually rye came to be cultivated in its own right. It was soon learned that rye can grow on land too poor for wheat. Farmers found that rye planted in autumn lived through the winter better than any other grain. Rye needs neither as much rain as oats nor as much heat as wheat.

In Denmark, the Netherlands, and northwestern Germany rye is used for livestock feed. However, rye is not so good as barley, oats, and corn for feed. Its use in these lands shows how farmers make the best possible use of the crops that thrive in their soil and climate. Rye is grown especially to feed hogs. It is also fed to dairy cows and to baby steers raised for beef.

Potato Crops. Just as Europe leads the world in the production of rye, so Europe also produces 90 per cent of the world's potato crop. Potatoes can be grown in different types of soil if they are deep enough for the long roots, if the drainage is good, and if fertilizers can be added. Potatoes thrive best in a climate that has cool summers with sufficient moisture from rain or irrigation. The Netherlands is one of the leading producers of potatoes. Potatoes are not grown in such very large quantities in Denmark, Germany, Poland, and other countries of Europe, but even here yields are high.

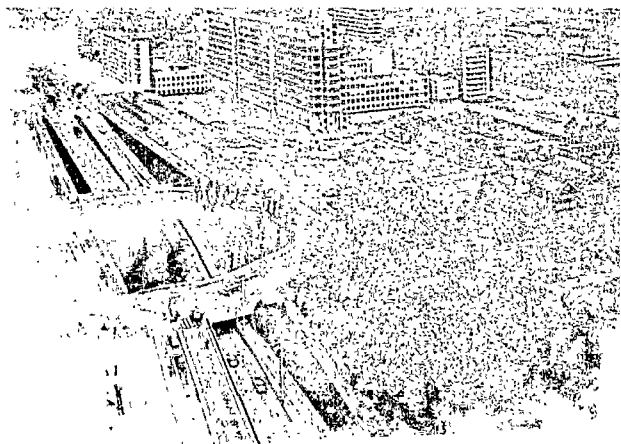
The northern and western portions of Poland form part of the North Sea-Baltic Plain. In the past it was common for wealthy Polish landowners to hold large farms or estates averaging well over 1,000 acres. Frequently they lived in the cities while managers directed the work of farm laborers or tenants. When the Communists took over, the estates were divided into small farms which were handed over to tenant farmers. Later the Communists tried to join the small farms together in collectives owned by the state. The tenant farmers of Poland and East Germany have strongly resisted having their land taken from them. Even if it should mean harder work and less prosperity the people would prefer to work for themselves.

A Revolution in Agriculture. Until the end of the nineteenth century, farmers on the Danish peninsula grew mainly grain crops in the poor sandy soils. The prospects for profitable farming did not seem bright. Then the Danish people made some important decisions. They decided to modernize their farming methods. They decided, too, to concentrate on growing fodder crops and on producing the best dairy products in Europe.

Today about one fourth of the population of Denmark works on the land. Nearly all Danish farmers own their own land. Being landowners, they take pride in caring for their property. For this reason they were quick to adopt scientific methods of farming.

The soil in western Denmark is naturally coarse and sandy, so that the water sinks through it too rapidly to keep the surface moist. The Danes learned to mix the sandy soils with marl, a soft limey mud from the bottom of lakes and bogs. The marl supplies lime to the sandy soil and helps it to hold water.

Sand dunes along the west coast were anchored by planting



grass, and pine or fir trees. These provided a windbreak, which protected the cultivated lands from winds and shifting sands. Because of such projects, three fourths of the land in Denmark can now be farmed.

The Development of Dairying. Denmark today is often described as one great dairy farm. The dairy industry certainly gives employment to many people. Those not working on the farms may be employed in processing dairy or livestock products or in marketing them. Denmark's population is about four and a half million persons. Its farmers own over three million cattle and five and a half million hogs.

The Danes have adopted a cooperative system of farming. Under this system many farmers who need services they cannot afford individually join together to provide services they can share. The typical Danish farm is about 75 acres. Of this, about 10 to 15 acres is pasture, and the rest is used for hay, root, and grain crops. To be prosperous, farmers must use only the best seeds, fertilizers, and marketing facilities. The cooperatives have made it possible for groups of farmers to buy goods and services which one farmer alone cannot afford. Farm machinery, too, is bought by the cooperative and sold or hired to the farmer.

Rotterdam, at the mouth of the Rhine, was destroyed during World War II. The rebuilt city has the largest and most modern port in Europe. (Three Lions)



Danish milk cooperatives are equipped with modern machinery. Some of the milk is exported. (Danish Information Office)

Danish farming has been an outstanding success. The name "Denmark" on ham, bacon, butter, and eggs is accepted today as a guarantee of high quality. Buyers know that the cooperatives will market only goods of the best quality, and the farmers who wish to remain members of a cooperative group must work to maintain these standards. Danish farmers are proud of the reputation of their country for quality. They are naturally pleased that the goods they take so much trouble to produce bring high prices.

A study of the milk cooperatives will show us how the high quality is kept up. Each member's daily quota of milk is tested before it is mixed with the milk sent in by other members for making butter. If the milk does not meet high standards in cream content and minerals, it is not accepted. The butter is sold by the cooperative and the profits on the sales are divided among the members. The skim milk returned to each farmer is in proportion to the amount of milk supplied by him. The skim milk is fed to the farm animals. Nothing is wasted.

LAND FROM THE SEA

The Polderlands. Along the Belgian, Dutch, and German coasts reaching to the border of Denmark lie fertile lands that have been

reclaimed from the sea. These reclaimed lands, called polderlands, have field after field of flat, treeless pasture. The people of the Netherlands have been the most daring and persistent in reclaiming land from the sea. In spring, the fertile soil of the Netherlands is often carpeted with brilliantly colored tulips. Dutch tulip bulbs are sold all over the world.

Canals several feet deep cut across the polderlands. In the past, picturesque windmills pumped water from lower-level canals to higher ones and thence back to the sea. Today few windmills are used because less attractive but more efficient motor pumps perform this task. In addition to draining the land, canals also serve as arteries of transportation. Almost every kind of service, from health service, to libraries, to repair shops, is brought on canal boats to the farmers and the tiny communities.

The Importance of Dikes. Dikes and pumps are necessary for creating polders. The method of building dikes varies from place to place according to the materials available. For example, where there are large sand dunes, the dunes are built up and banked with stones.

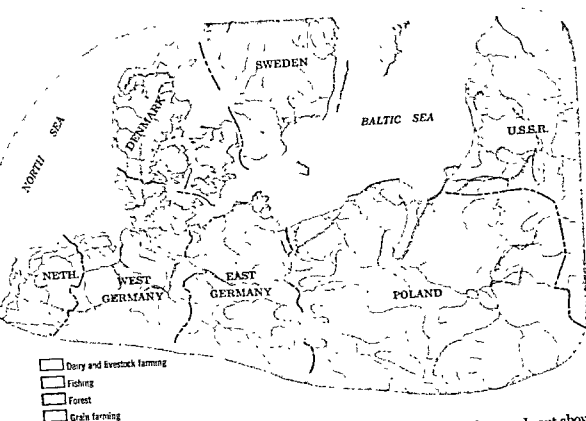
Reclaiming land from the sea is a specialty of Dutch engineers. Their most important project was the conversion of the Zuider Zee from a shallow saltwater branch of the North Sea into Yssel Lake. By draining the lake, many hundreds of square miles of land have been made suitable for growing crops or for pasture.

Dutch farmers use every inch of their land. Crop yields in the Netherlands are among the highest in the world. Dairying is the most important farming occupation, but the Dutch prefer crops that bring in higher prices than the ordinary food crops. The Dutch farms export large quantities of cheese and flower bulbs. The money from these products is used to buy grain crops and other foodstuffs which must be imported.

CENTERS OF COMMERCE AND INDUSTRY

Most people of the North Sea-Baltic Plain earn a livelihood from the land. Those who are not farmers work in food processing or other industries related to the manufacture and transportation of food. Most of the towns or cities are market or transportation centers. There is, however, some light industry for which raw materials are brought in from outside the region. But throughout the whole region more people work in agriculture than in industry. With the exception of Berlin, the most important cities are all seaports.

NORTH SEA-BALTIC PLAIN: LAND USE



Berlin. Among the cities of the plain, Berlin stands out above all others. Today this city is divided. Part of it belongs to West Germany, from which it is cut off by 90 miles of Communist territory. The rest of the city forms the capital of the Communist state of East Germany. In 1939 Berlin was the greatest industrial city of Germany, as well as the capital of a united and thriving country. At the outbreak of World War II, Berlin's 4,000,000 people included some of the most skilled Germans. They processed great quantities of food and produced excellent clothing, electrical goods, machinery, building materials, and steel. Excellent roads, railroads, and canals linked the city with the rest of the country and with other European nations. Planes from all over the world landed at this fifth largest city of the world.

In World War II, vast areas of the city and much of its industry were wiped out. Now its factories have been rebuilt. The democratic western zone is especially prosperous. But the people, the city, and its industries suffer from the political division. Today the population of East Berlin is much less dense than that of West Berlin. A wall manned by armed guards prevents people from crossing from one part of the city to the other. Families have been

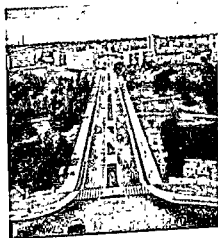
separated, and businessmen have been cut off from their shops, offices, or homes by the barrier. The freedom and prosperity of West Berlin are in striking contrast to conditions in East Berlin. The reasons for this contrast are mainly political.

Hamburg. Hamburg, the most important port on the North Sea-Baltic Plain, once ranked as the third busiest port in the world. It is truly a city of the plain, for it lies 55 miles inland at the mouth of the Elbe River, which empties into the North Sea. Hamburg has a network of waterways spanned by many bridges. Heavy bombing in World War II practically wiped out the docks, and fire swept through the old commercial district. Today the port has been restored to its pre-war activity. Considerable beauty has come with the rebuilding of the city.

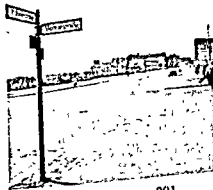
Hamburg is very important because it is close to the Kiel Canal. From the estuary of the Elbe, this canal crosses to the city of Kiel on the Baltic Sea. The Kiel Canal saves ships a long journey around the Danish Peninsula. More ships pass through this canal than through the Suez and Panama canals combined. However, most ships that use the Kiel Canal are quite small.

Hamburg also has excellent communication with Copenhagen. The two cities are connected by a route which was opened up in 1963 to carry rail and automobile traffic from West Germany to Denmark. This route greatly reduces travel time between West Germany and Scandinavia. The route crosses a long bridge from the German mainland to the island of Fehmarn. At Puttgarden, on the north of this island, railroad cars and automobiles are carried by ferry to the island of Lolland. From Lolland there is a rail and road link with Copenhagen. The journey from Copenhagen to the mainland of Sweden is a short trip by ferry. This new passenger and trade route joining the European mainland to Scandinavia is a good example of the steady progress that the countries of northern Europe are making.

Bremen. Next to Hamburg as a seaport comes the great German port of Bremen. Located on the Weser River, Bremen is 40 miles upstream. It has an outer port at Bremerhaven for the very large ships which cannot come up the river, but Bremen also has excellent harbor facilities. The city is one of Germany's most active trading centers. It was founded more than 300 years ago, but was severely damaged by bombing during World War II. Now it has been rebuilt and some of the beautiful old buildings and churches have been restored. The new port facilities and shipyards are among the most modern and best-equipped in Europe. Freighters leaving Bremen and Bremerhaven carry the goods manufactured in the thriving industries of West Germany to all parts of the world.



The thriving city of West Berlin is in sharp contrast to neighboring East Berlin. (German Information Center)



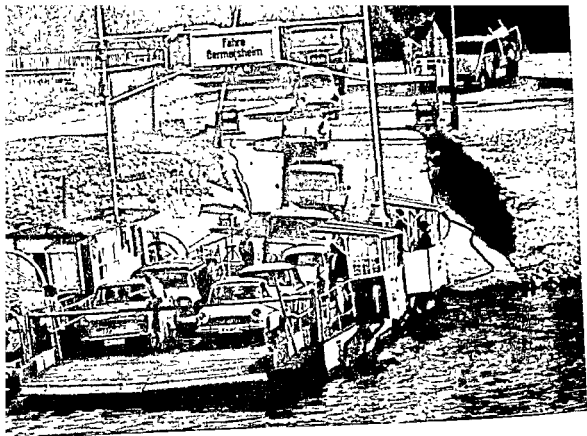


Bicycles are a popular means of transportation in Copenhagen, where the land is very flat. (Swissair)

Copenhagen. Besides being the capital of Denmark, Copenhagen has developed because of location. Copenhagen is built on the island of Zealand within a few miles of the Swedish coast. Because of this, Copenhagen is a busy seaport. In addition, it stands guard over the narrow strait that joins the Baltic Sea to the North Sea. Thus it is in a position to control the shipping to and from the Baltic ports.

The port of Copenhagen does not freeze over in the winter. Most of the Baltic seaports east of it are closed by ice for weeks or months each year. Denmark needs good shipping facilities for its vast export trade. The well-equipped port of Copenhagen goes a long way to meet these needs. Although built on an island, it has excellent rail and train-ferry connections with the mainland of Denmark. It is also connected by ferry to the coast of Sweden.

Danzig and Gdynia. The port of Danzig at the mouth of the Vistula River is in Poland. Danzig has some shipbuilding and light industry. Gdynia, another Polish port nearby, serves mainly as an outlet for the agricultural produce of this farm region.



The Rhine River forms part of the boundary between France and Germany. These motorists are about to cross the Rhine into Germany near Strasbourg, France. (United Nations)

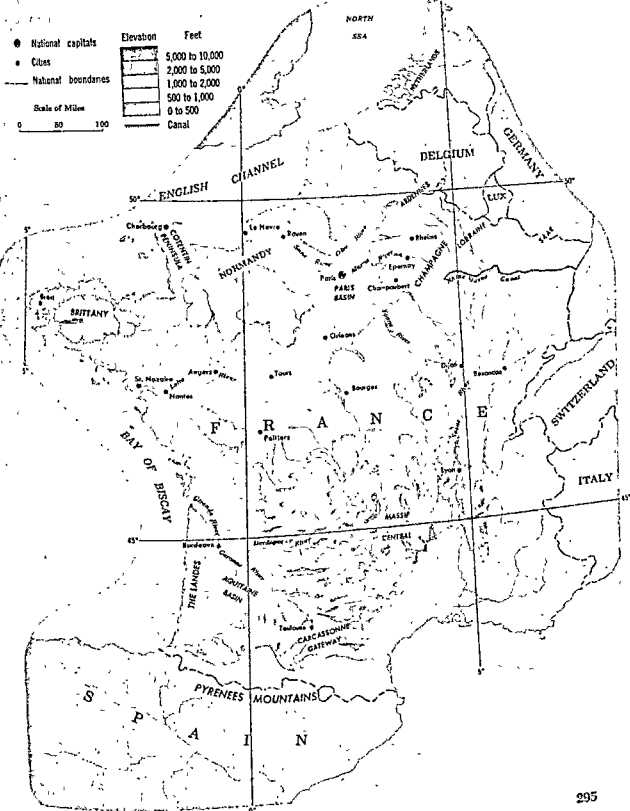
CHAPTER 16 Brittany and the Lowlands of France

We shall now study a region that is very different from the North Sea-Baltic Plain. This is the region made up of the fertile plains and coastal regions of France, the largest country in Western Europe.

Viewing the Land. Look at the map of this region, taking special notice of the location of Paris. You can see that a number of rivers flow towards Paris as if they were flowing down the sides of a basin. Then they join the Seine River as it flows northwestward to the English Channel. The shallow, basin-like depression around Paris is called the Paris Basin.

Imagine taking a train trip southward from Paris. First we pass through Orleans. At Bourges we turn westward around the Massif Central. Finally we come to the city of Bordeaux in southwestern France. The Pyrenees Mountains and the Massif Central border

BRITTANY AND LOWLANDS OF FRANCE: PHYSICAL-POLITICAL



the lands around Bordeaux on the south and east. Notice that the Garonne and Dordogne rivers flow into a common estuary near Bordeaux. The lowlands around these rivers are called the Aquitaine Basin.

Now that we have located the Paris and Aquitaine basins, let us journey up the west coast of France until we come to the province of Brittany. Brittany is in the part of the country we call Maritime France. It is like a boar's head sticking out into the ocean, with the Bay of Biscay on one side and the English Channel on the other. You can see that Maritime France has some highlands, although they are not as rugged as those in the southern and eastern parts of the country.

The soils of this region are quite different from the soils of the North Sea-Baltic Plain. Since the ice sheet that moved from the north over Europe did not come this far, we do not find here the infertile sandy soils which the glaciers dropped farther north. The soils of France are generally very good, and every acre is carefully cultivated. The French have been farming their land for nearly sixteen centuries, and during these years they have learned where certain crops grow best.

THE PARIS BASIN: FRANCE'S RICHEST REGION

The Paris Basin has every advantage of good location. To the north of the basin are the large industrial cities, situated around a rich coal field. These cities supply coal, cloth, chemicals, and unfinished steel to the industries of Paris. In addition, they provide a market for much of the agricultural produce of the basin. To the northeast are the industrial areas of the Saar and Lorraine, which you read about in Chapter 14. To the southeast is the vitally important Rhone-Saone corridor, which links the Paris Basin with the Mediterranean coast of France.

The Paris Basin also has advantages in climate. As you can see from the map on page 15, this is the area where we find a gradual change from the marine climate in the west to the continental climate in the east. Plentiful rain and mild temperatures combine with several features of the continental type of climate. Summers are sunnier and drier than is usual in a marine climate, and winters are colder. This transitional climate helps to make the basin a good agricultural area. Rainfall averages 24 inches a year and is well distributed. Temperatures range from a January average of 36° F. to a July average of 65° F.

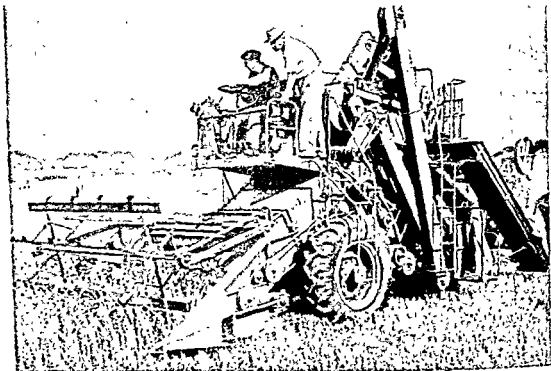
The western part of the Paris Basin is almost a level plain. On the north and east, long, curving ridges slope gently toward the



French farmers are able to supply the major food needs of the people of France. (French Embassy Press & Information Division)

center of the Paris Basin but present a steep face to the north and east. In days gone by, fortifications on these ridges helped to protect the basin from invaders.

The drainage pattern of the Paris basin is another favorable feature. Many rivers flow toward the center of the basin. Within very short distances of Paris, the Oise, Marne, Yonne, and other rivers enter the Seine. Many of these rivers are navigable for large boats. As a result, they provide cheap water transportation between Paris and the towns and cities along the edges of the basin. Moreover, the land between the rivers of the Paris Basin and the rivers of other regions is flat and low lying. Because of this, it has been possible to build a network of canals connecting the rivers and serving a very wide area.



A modern combine in the Paris Basin cuts and threshes wheat. (Domic from Shostal)

A Fertile Lowland. The farmers of the Paris Basin are proud of their fertile soil and cultivate it intensively. By use of fertilizers and crop rotation they have kept the soil rich and productive. French farmers of the Paris Basin have learned to use the soils well to provide themselves and their families with a prosperous living. Since they make a good income by selling their produce in Paris and in other French cities, they have not been tempted to leave the land to work in the city. Over two thirds of the farms in the Paris Basin are owned by independent farmers.

The long loaves of French bread that French housewives carry home from the bakery are made from wheat flour. Wheat grows well in the fertile soils of the Paris Basin. Sugar beets are planted in rotation with wheat. Ninety per cent of all the sugar beets raised in France are grown in the Paris Basin. The most important wheat area is a small district south of Paris. The wheat farmers here are very prosperous. Many of them own farm machinery, which they can use profitably in their large open fields. Their fields are generally larger than fields elsewhere in France.

Dairying is the major type of farming in another part of the Paris Basin. Grasses grow well in the moist climate and do not dry up during the summer months. Because of mild winters, the cows can graze in the fields nearly all the year. The farmer does not have the expense of building large barns. Sugar beet tops and pulp are used for cattle feed, just as they are on the loess plain in the north of the Continental Industrial Region.

On the outskirts of Paris, there are huge market gardens. These gardens are similar to the market gardens near any large city of our own country. The farmers gather the vegetables during the day and load them on trucks in the evening. At dawn these vegetables are on sale at Les Halles, which has been the chief food market in Paris and indeed in the whole of France since the Middle Ages. Les Halles is bustling with activity when most people are still asleep.

The Open Fields of Champagne. At the eastern edge of the Paris Basin lies the ancient French province of Champagne. Notice the open fields in the picture on this page. It is unusual to see hedges or fences between the fields in Champagne. Most of the farmers live in the villages and go out to their fields every day. As they work in the fields, they have a view over the open country of Champagne. This open type of landscape is typical of most of the Paris Basin.

The land in Champagne is planted in strips. One farmer may own nine or ten separate strips around the village. If you ask why the land is divided in this way, the farmer will say, "That's the way it has always been. Why should we change?"

The system of strip farming goes back to feudal days. It was the custom in those days to divide the land so that one third could be planted in wheat, one third in barley, and one third left fallow. The villagers grazed their cattle and sheep on the stubble

From these grapes, the people of Champagne make a bubbly wine named for the province. (Henri from *Rapho-Guallumette*)



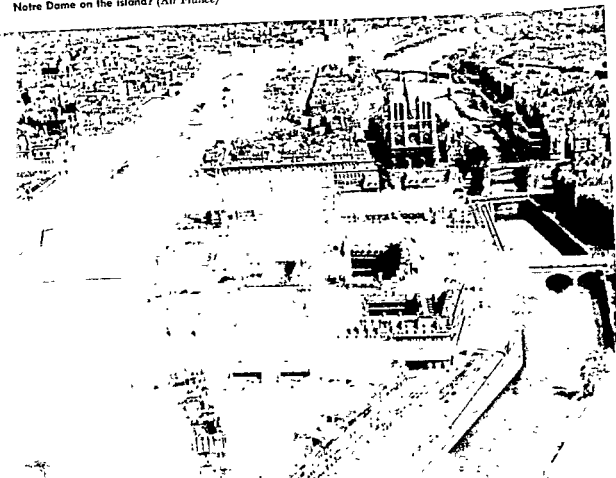
of the fallow land. It was illegal for any farmer to build a fence to keep out his neighbor's cattle and sheep.

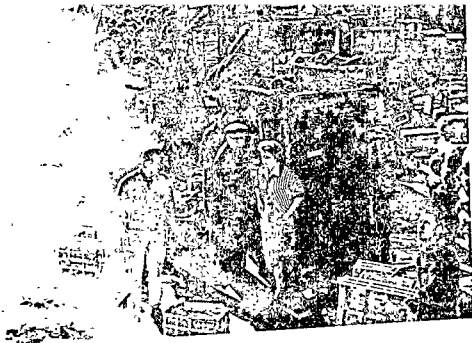
Farmers today plant sugar beets and clover to restore the soil, and there is no longer any communal grazing of cattle and sheep. But many of the old patterns remain, and the people of Champagne feel that there is no reason to change them.

In the more hilly parts of Champagne, the open fields give way to vineyards. Around the towns of Rheims, Epernay, and Champaubert, the farmers grow large quantities of red and white grapes. These grapes are used to make the famous champagne wine. Champagne is a bubbly type of wine. It is allowed to ferment slowly over a long period in large, cool, underground caverns.

Paris. Paris, the capital of France, is located at the center of the Paris Basin. The city covers a large area and is surrounded by many suburbs and towns. About one French person in seven lives in or near Paris. Paris is not only the center of government but also the financial, commercial, and industrial center.

The Ile de la Cité is the oldest part of Paris. Can you find the Cathedral of Notre Dame on the island? (Air France)





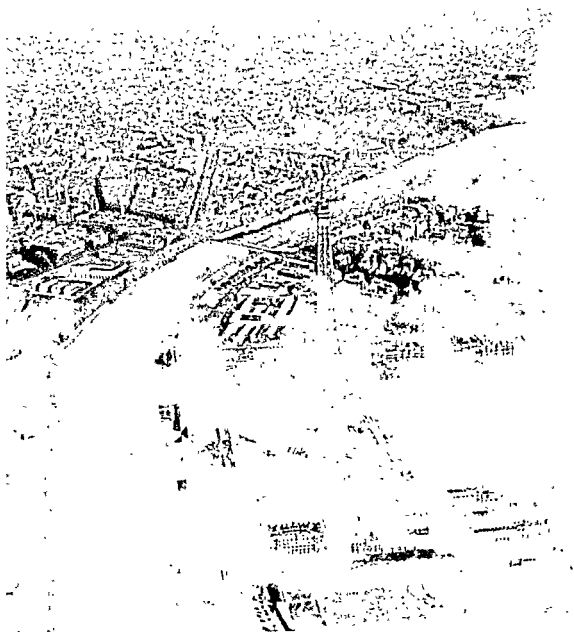
Shoppers crowd Les Halles, the great food market of Paris, to buy choice meats, poultry, fruits, and vegetables. (Wide World)

This large, beautiful city grew from a small Roman fortification on the Ile de la Cité. The Ile de la Cité is the oval-shaped island in the Seine River that you see in the picture on page 300. Since the river is narrow on either side of the island, it is easy to cross the Seine at this point. As Paris grew, the city spread from the island to the neighboring banks of the river.

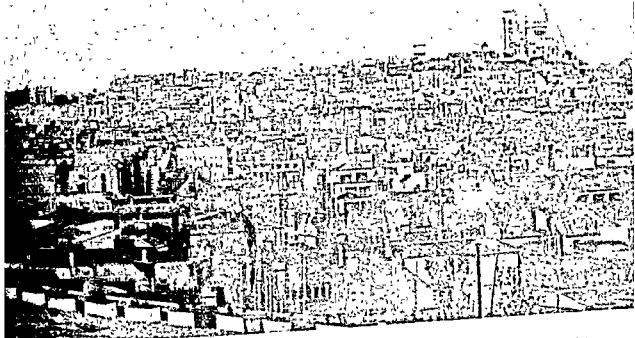
Paris is the meeting place of many routes. Railroads, highways, water and air routes all lead to the capital. The Seine, flowing through the heart of the city, opens it to trade with the ports on the English Channel. When ocean ships were smaller they used to come all the way up to Rouen. Now Le Havre serves as the port for Paris.

After Marseille, Le Havre is the busiest port of France. Many raw materials for the industries of Paris and northern France enter the country at Le Havre. Imported goods can travel from Le Havre to Paris up the Seine, and from Paris they can reach many other inland cities by water routes.

Transportation by water is usually cheaper than by land. It is an important advantage for French trade that many of the rivers of the Paris Basin join the Seine close to Paris. Just north of Paris the Oise links the city with the Ardennes and the industrial areas of the Franco-Belgian coal field. East of Paris is the Marne. The Marne connects Paris with the cities of the Rhine by the Rhine-Marne Canal. Boats bring goods from Strasbourg all the way to Paris on this river. Southeast of Paris is the Yonne River. One tributary of the Yonne links Paris with the Loire Valley. The other tributary links Paris with Dijon and the Rhone-Saone corridor.



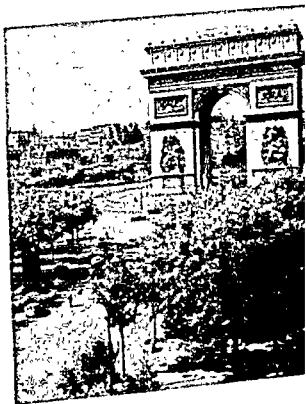
No trip to Paris would be complete without a visit to the Eiffel Tower. When it was built for the World's Fair of 1889, the Eiffel Tower was the highest structure in the world. (BOAC Photograph)



The Basilica of the Sacred Heart is on the highest hill in Paris. From this point visitors can see the whole city. (Ross from Photo Researchers)

The Arc de Triomphe (Arch of Triumph) is a symbol of patriotism for the French people. It was built in honor of Napoleon Bonaparte. (Trank from Photo Researchers)

Paris is a gay city. These children are having fun at a fair in Montmartre, the artists' neighborhood. (Henle from Photo Researchers)



Paris is also the hub of the French railroad system, one of the best railroad systems in the world. The French claim that no place in their country is more than 25 miles from a railroad. This is remarkable, since France includes a mountainous Alpine region. The railroads radiate out from seven railroad stations in Paris. In addition, Paris has a busy international airport at Orly, just outside the city.

Paris is a very important industrial city. In the heart of the old part of the city, skilled workers still manufacture luxury goods that used to be made there for the nobility when France was a kingdom. People come from all corners of the world to buy the beautiful furniture, fine textiles, fashionable clothes, leather goods, and delicate jewelry that are made in Paris.

On the outskirts of the city are large modern factories. Automobiles, machinery, chemicals, railroad supplies, and electrical equipment are made in these factories. The raw materials for these heavy industries come by barge from the Franco-Belgian

Women the world over consider Paris the world's fashion center. (French Embassy Press & Information Division)



"Made in Paris." Shoppers for fine-quality luxury items are always on the lookout for this label. (Disseminé from Raphia-Guillermette)



and the Saar-Lorraine industrial areas. Coal, iron ore, unfinished steel, textiles, and chemicals form the bulk of the goods carried on the barges.

Paris from the Eiffel Tower. Many thousand French and foreign visitors come to Paris every year. One of the first places they visit is the Eiffel Tower. From the top of the Eiffel Tower you get a bird's-eye view of the whole city. It helps to take a map along so that you can locate some of the sights.

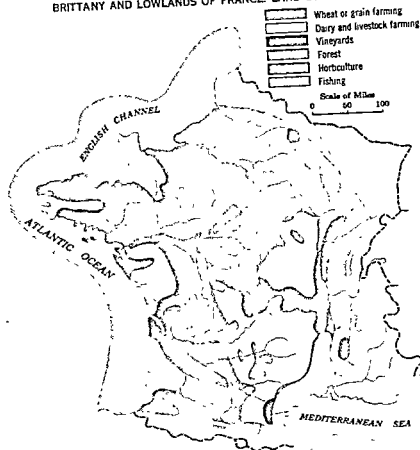
You can see the Ile de la Cité in the Seine River and the many bridges connecting the island to the right and the left banks of the river. On the Ile de la Cité is the beautiful Notre Dame Cathedral with its magnificent rose window in stained glass. This great cathedral reminds us of the great Faith and the love of Our Lady that were so much a part of the lives of the French people in the Middle Ages. Near Notre Dame on the Ile de la Cité is Sainte Chapelle, built by Saint Louis, a king of France, to house a relic of the True Cross which he brought home from the Holy Land. On the island you will also find government buildings.

On the right bank of the Seine is the Louvre, one of the most famous art museums in the world. Near the Louvre are the Tuileries Gardens, a beautiful public park, and the vast square known as the Place de la Concorde. From the Place de la Concorde a broad street called the Champs Elysées leads to the Arc de Triomphe. Twelve other roads come together in the great square at the Arc de Triomphe, where the Tomb of the Unknown Soldier is located.

In this section of the city, the sidewalks are lined with outdoor cafes. Here also are the great Paris Opera House and many other theaters. Everyone in Paris has the opportunity to satisfy his tastes in art, music, and drama. In the distance are the domes of the basilica dedicated to the Sacred Heart. This church is on the crest of Montmartre, the highest of several hills on which Paris is built.

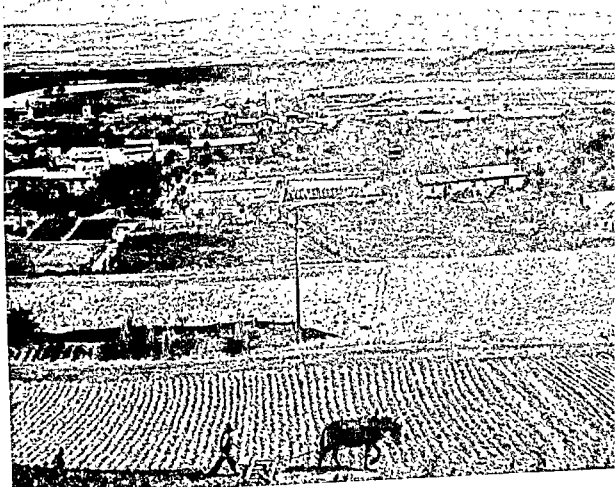
On the left bank of the Seine is the University of Paris. Many students from all over the world, including Americans, come to study at the Sorbonne, the liberal arts college of the university. During the Middle Ages, St. Albert the Great and St. Thomas Aquinas lectured at the university. The left bank is the traditional home of students attending the university and the many other educational institutions in this city, which has a long tradition of love of learning. The banks of the Seine are lined with interesting little stalls whose owners sell books, magazines, and pictures. The district where the students are housed has been called the Latin Quarter since the days when most of the classes were given in Latin.

BRITTANY AND LOWLANDS OF FRANCE: LAND USE



THE AQUITAINE BASIN

A short journey down the Loire Valley brings us to the Aquitaine Basin. Let's look at the Loire Valley for a moment. The picturesque countryside is dotted with old towns and castles. The principal cities are Poitiers and Tours. Both of these cities have a rich heritage of culture and today are busy and thriving. The very beautiful city of Tours, on the Loire River, was founded by the Romans and has been a center of Christianity since A.D. 250. It has many educational and cultural institutions and is a prosperous industrial city. All along the Loire are ancient castles and churches of inspiring architecture, built by the kings and nobles of France. Most of these castles are now preserved as monuments by the French government, and many of the churches are still in use.



Each field on the outskirts of a French farm village may belong to a different farmer and planted with a different crop. (Ewing Galloway)

Ancient castles in the Loire Valley are reminders of France's glorious past. (French Embassy Press & Information Division)





Sheep in the Dordogne Valley provide wool for small home industries. (Dorr from Photo Researchers)

Nantes, near the mouth of the Loire, is the main port of the region. It is also the outlet for wines and many other French products. Like the Garonne, the Loire is not easy to navigate. Many large ships are unable to go up as far as Nantes. Because of this, St. Nazaire has been developed as an outer port for Nantes. It is connected to the main port by a ship canal. The major industry of St. Nazaire is shipbuilding. Many of the large French ocean liners are built here.

Mixed Farming in the Valleys. The best farm land in the Aquitaine Basin is in the valleys of the Garonne and Dordogne rivers. Tiny fields of wheat, tobacco, and vegetables cover these valleys. In the far south, where it is warm enough, farmers also grow corn. Most of the corn is fed to hogs. Wine grapes used to be grown in the cooler northern parts of the Aquitaine Basin, until blight damaged the grapevines of the area. Now dairying has become the major occupation of the people. As in the Paris Basin,

the mild climate makes it possible to keep the cattle outdoors all year. Cooperatives similar to those in Denmark have been organized to make dairy farming more profitable for the small farmers. The farmers are mostly tenant farmers. They are, therefore, less prosperous than the farmers in the Paris Basin, who own their own land.

The Vineyards of Aquitaine. When you travel through the eastern parts of the Aquitaine Basin and along the banks of the Gironde, it seems as though the vineyards are endless. The grapes grown here are used to make many famous French wines and brandies. Different wines are produced in different parts of the Aquitaine Basin. The flavor of wine varies with the kind of grape grown, the type of soil, and the amount of sunshine, moisture, and warmth the vines get. The flavor also depends on the way the juice is pressed from the grapes and allowed to ferment. The farmers of the Aquitaine Basin have been growing grapes and making wine for many centuries. They have learned what varieties of grapes grow best in the different parts of the basin. The French government has made laws to maintain the high quality of French wines. These laws regulate the varieties of grapes to be grown on the four million acres of vineyards in France and the types of wines to be made.



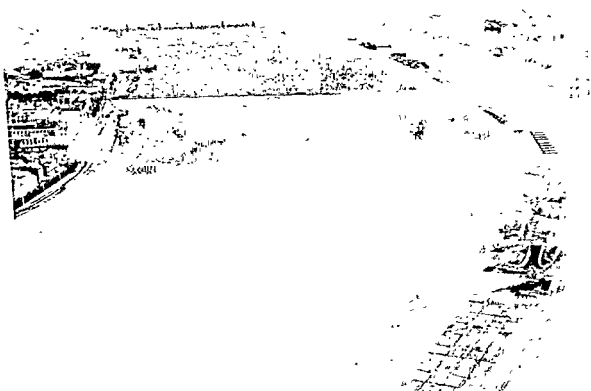
One fourth of France's vineyards are located in the Aquitaine Basin. (French Embassy Press & Information Division)

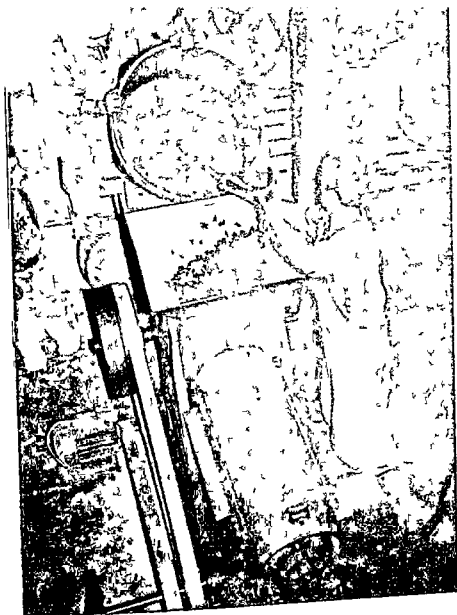
Conservation in the Landes. The Landes is a triangular piece of land between the Garonne River and the coast. Find this area on the map on page 295. The soil is sandy but fertile. Sand dunes stretch along the coast of the Bay of Biscay, and behind the coast the land used to be marshy. Few people lived in this area until the government undertook a vast conservation program. When the marshes were drained, large forests of cork oak and pine trees were planted to anchor the shifting sands. The conservation program has made the Landes one of the largest forest areas in France. The Landes now supplies large quantities of lumber, resins, turpentine, and other naval stores.

Bordeaux and Toulouse. Bordeaux is the largest city in the Aquitaine Basin. It is a port city located on the long, narrow estuary into which the Garonne and Dordogne rivers empty. Wine is the most important export of Bordeaux, and the warehouses and wharves are filled with casks of wine. Much of this wine is exported to England. Bordeaux once belonged to the British, and the city has since maintained close ties with England. In the docks at Bordeaux you will see many ships from the United Kingdom.

For some years, Bordeaux was an important port for France's African colonies. This trade has diminished since France lost most of her overseas possessions. In recent years, oil was discovered near Bordeaux. All around the port you will see large oil refineries.

Through the busy port of Bordeaux pass the imports and exports of the Aquitaine Basin. (French Embassy Press & Information Division)





petro-chemical plants, and soap factories. Although the Bordeaux oil deposit is valuable, it is not nearly so large as the oil deposits of the Sahara in which France still has an interest.

The only other very large city of the Aquitaine Basin is Toulouse, the fourth largest city of France. Toulouse is located in the southern part of the basin. It lies at one end of a low pass in the mountains called the Carcassonne Gateway. The Carcassonne Gateway is the easiest route from the Aquitaine Basin to the Mediterranean. Modern Toulouse is one of the fastest growing cities in southern France. Many new factories have located there to take advantage of the cheap hydroelectric power that is available from the harnessing of rivers in the Pyrenees.

Wine presses squeeze the juice from grapes without breaking the seeds, which could make the wine bitter.
(Dumic from Shostal)

MARITIME FRANCE: BRITTANY AND NORMANDY

Maritime France is a rugged region bordering the lowlands on the west along the coast. Your map shows you that this area includes two rocky peninsulas. The larger, southern peninsula includes the ancient French province of Brittany. The smaller peninsula to the north is the Cotentin Peninsula. The Cotentin Peninsula is part of the ancient French province of Normandy.

A Damp Climate. The North Atlantic Drift plays an important part in the lives of the people of Normandy and Brittany. This current warms the peninsulas in winter, making the winters mild. In summer the sea is cooler than the land, and winds from the sea keep the days cool and cloudy. Brest, in Brittany, has an average January temperature of 45° F. Snow hardly ever falls, but many days are rainy. Cloudiness and strong winds are typical of the climate.

Seaweed is gathered on the coast of Brittany. When dried, it makes good fertilizer. (Mottar from Photo Researchers)





These Breton fishermen are unloading their day's catch (Daniell from Photo Researchers)

Brittany The Bretons are descendants of the Celts, one of the most ancient peoples of Europe. During the Roman conquest, many Celts fled from Britain and settled in Brittany. Breton, the language of Brittany, is a Celtic language. Brittany is in many ways a region apart. The Bretons are unlike people of the other French provinces even after close association with them for 2 000 years. It is said that the Bretons face toward the sea, while all other Frenchmen face toward Paris.

For centuries the Breton people have been devout Catholics. Their village and family life centers around the church. The "pardon" or local festival held annually in every Breton village opens with a religious ceremony. Family reunions begin or end with a church ceremony. These festivals are made gay by the beautiful costumes of the Breton men, women, and children who cling to the old ways and traditions, at least for feast days. The Breton "pardons" also attract many tourists. They provide a refreshing change for visitors who come from modern cities.



The lacemakers of Brittany are well known for their skill. The sale of their needlework brings in extra household money. (*Freund from Monkmeier*)

Farming in Brittany. Most of Brittany is a low plateau of very hard rocks. The plateau is not so fertile as the rest of western France, but the mild climate is well suited for dairying, fruit farming, and vegetable growing.

Along the coast of Brittany there are many apple, pear, peach, and cherry orchards. Apples grow well and become deliciously crisp as they ripen slowly in the cool summer. Brittany is one of the few areas in France where cider is more popular than wine. Where the soil is suitable, vegetables are also grown for city markets. Every day vegetables are carried by truck and train to Les Halles market in Paris. Some vegetables are sent across the English Channel to London.

Inland Brittany is less productive because the soils are poorer than those on the coast. Only buckwheat and rye thrive here. Much of the land is too poor even for rye, and the fields are covered with wild, spiny plants. The industrious Bretons have found a way to use these coarse plants. They pound them into winter fodder for cattle, pigs, and sheep.

Fishermen and Sailors The lashing surf of the gales that drive in from the Atlantic has cut the shore of Brittany into rocky cliffs. In places where the rocks are not so hard the sea has carved many small inlets and coves. These numerous inlets and coves are valuable harbors for Breton fishing fleets. Abundant supplies of fish are caught in the shallow coastal waters around Brittany. In the picturesque coastal villages you often see the blue fishing nets drying in the sun. Fishing is very important to the Bretons.

While many Bretons are fishermen many others join the French navy. The port of Brest in addition to being an important fishing port, is the home port of the French navy. Brest has an excellent harbor. Its isolation at the tip of the peninsula away from the rest of France is an asset for the navy. It is easier to conduct naval operations in waters that are not crowded with commercial shipping. Because it is surrounded by unproductive land, and there are no large cities nearby Brest has not become an important trade port.

Breton fishermen catch sardines and some tuna off the southern shore of the province. They sail out to the deeper waters of the ocean for cod, mackerel and herring. In the spring, many fishermen set out for the fishing banks near the Canadian coast. Before leaving the villagers gather at the local church for Mass. Afterwards they walk in procession to the wharves. There a priest blesses the fishermen, the ships and the nets, and the fishermen set out across the Atlantic.

The men are away until the fall. While they are at sea the wives care for the families, the homes and the farms. The women mend the nets or work in the fish packing factories. In their spare time they make lace. In this machine age the handmade laces of Brittany are highly prized, just as are the beautiful handmade laces of Belgium.

Apple trees grow well in the coastal regions of Brittany and Normandy.
(Dousnea is from Rapi o-Gu illi mette)





Normandy has good pasture land for cattle. (French Embassy Press & Information Division)

The coastal areas of Brittany abound in all types of shellfish. At low tide, the women and children move along the beach collecting the shrimps, oysters, and clams washed up by the waves. To assure a steady supply of oysters for the markets, oyster beds are "cultivated" along the shores. To protect the beds, the number of oysters that may be taken from any area is strictly controlled by the government.

Normandy. As we cross from Brittany to Normandy, farming becomes more important than fishing. But this farming area is very different from those in other parts of France. The soil is of heavy clay and not very fertile. The land is mostly under pasture. Normandy is not very far from Champagne, but there are no open fields here. Each tiny field is enclosed by hedges. In ancient times these hedges were useful because they fenced cattle into small areas and prevented them from straying. The hedges also provided wood and charcoal for fuel. Today hedges are a hindrance, because large farm machinery cannot be used in the small fields. Farm horses are still in use in some areas, but they are being replaced by small French-made tractors.

Many farmers in Normandy concentrate on dairy farming and market gardening. The manne climate is excellent for both these activities. Cattle from Normandy are rated among the best in the world, and many fine cheeses are made in this region. Camembert cheese is a famous cheese from Normandy.

17 Fenno-Scandia

In this chapter we are about to study a region that includes three countries on the peninsula that juts out on the northwestern edge of Europe. The three countries that share this peninsula, Norway, Sweden, and Finland, are together known as Fenno-Scandia.

The long Gulf of Bothnia reaches northward from the Baltic Sea to cut Fenno-Scandia almost in two. This makes the western half of the main peninsula a peninsula itself. This smaller peninsula, which contains Norway and Sweden, is called the Scandinavian Peninsula. Finland lies across the Gulf of Bothnia from the Scandinavian Peninsula. Finland has short borders with Norway and Sweden and a much longer border with the Soviet Union. Though it has much in common with the rest of Fenno-Scandia, you will learn that it also has some differences.

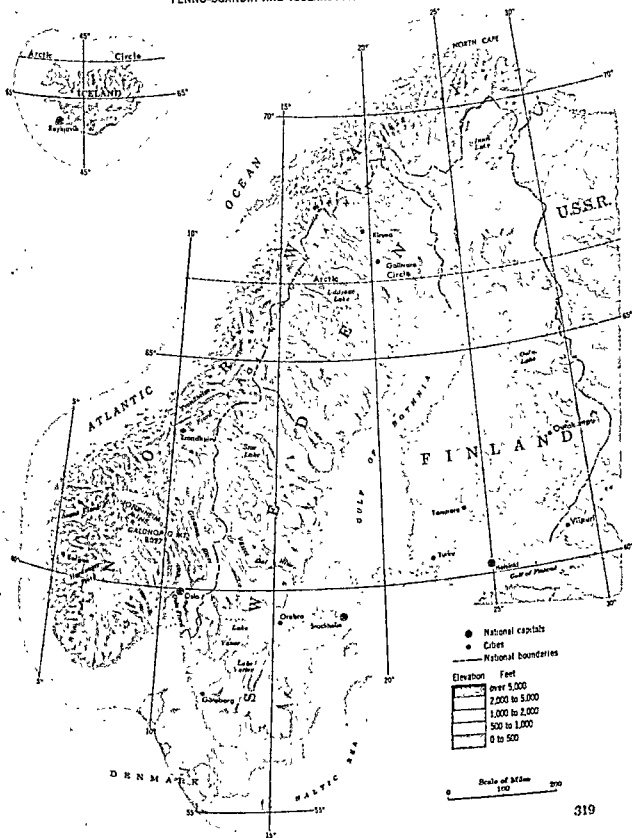
While Fenno-Scandia is Western European in culture, its geographic character sets it apart from the rest of Europe. Compared with other European countries, Norway, Sweden, and Finland are large. Only France and Spain are larger. But the countries of Fenno-Scandia have small populations. Only Ireland, Albania, and the tiny state of Luxembourg have fewer people than Norway. Sweden, Finland, and Norway are the only countries in Europe which have fewer than 100 persons per square mile. We shall soon see that this is due to the rugged terrain, the poor soils, and the cold climate of most of Fenno-Scandia. We shall also see that the countries of Fenno-Scandia have resources that give them one of the highest living standards in the world. Not the least of these resources are the great cleverness and energy of the people.

Scandinavia. Perhaps you are more familiar with the term Scandinavia than with the term Fenno-Scandia. Scandinavia includes not only Fenno-Scandia, but also the country of Denmark that almost joins it to the south. You have seen that geographically Denmark belongs to the North Sea-Baltic Plain Region. It does, however, have much in common with the Fenno-Scandian countries.

LAND SURFACE

The Baltic Shield. Eastern Sweden, Finland, and the northeastern section of the Soviet Union lie across the Baltic Shield. Shield is the name given by scientists to an area of very hard and ancient rock. The Baltic Shield is a huge plateau of rock worn

FENNO-SCANDIA AND ICELAND: PHYSICAL-POLITICAL





A



B



C

A) As the glacier moved, it hollowed out a valley. B) The melting ice formed a stream on the valley floor. C) The stream deposited large quantities of alluvium, thus building up excellent farm land along the banks.

down over many millions of years. As we shall discover, the steep mountains of Norway and western Sweden are much younger than the rocks of the Baltic Shield.

Rugged Terrain. The first thing you notice when you look at a map of Fenno-Scandia is that the western part has high, steep mountains. The west coast of Norway rises from the water's edge in sheer cliffs or steep slopes. In south central Norway, the mountainous spine of the Scandinavian Peninsula reaches a height of over 8,000 feet. These mountains are called the Jotunheim Mountains, which means "Home of the Giants." They support the largest glaciers in Europe. To the north, the Kjolén Mountains form the boundary between Norway and Sweden.

From the southern part of the Kjolén Mountains, the land descends in rolling hills to the Glomma Valley in southeastern Norway, the Central Lake District of Sweden, and the Gulf of Bothnia. Northeast of this shallow gulf the land rises again to a low, lake-studded plain or plateau north of the Gulf of Finland. Most of Finland is less than 1,000 feet above sea level. In the north it rises to 1,500 feet, forming a divide between south- and north-flowing rivers.

Landforms and Glaciers. During the great Ice Age, Fenno-Scandia was the center of a huge ice sheet. As the ice sheet grew, it scraped and hollowed out the land down to solid rock. The rocky ridges were smoothed and rounded and the valleys broadened, straightened, and deepened. As the ice melted, it deposited a thin cover of boulders, gravel, and clay. In most places this deposit is too thin to form soil for farming.

The action of the ice masses was especially great in the valleys leading down from the Kjolén Mountains on the west coast of Norway. The valley bottoms were greatly deepened to form huge U-shaped fiords, now flooded by the sea. The steep walls of the fiords plunge hundreds of feet below the surface of the water. The longest of the fiords, Sogne Fiord, reaches 110 miles into the land. Trondheim Fiord and Hardanger Fiord are also very long.

The population map on page 222 shows that the coastal areas of Fenno-Scandia and the Central Lake District of Sweden are densely populated. Only in these low-lying areas is the soil at all suitable for agriculture. The good soil lies in patches among the rocks hollowed out by the glaciers.

When the ice melted, the land of Fenno-Scandia was dotted with lakes. This is especially true of Finland, where one tenth of the land is covered by water. Some lakes occupy rock basins gouged by the ice. Other lakes cover valleys that were dammed up by material left by the ice. Many shallow basins may once have been lakes. When soil from higher surrounding areas was



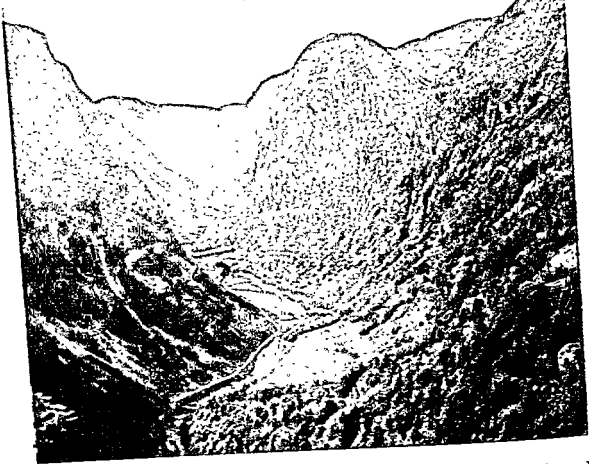
washed down into shallow lakes, the lake beds gradually changed into bogs or swamps.

Forested Land. Most of the land in Fenno-Scandia is poor for farming, but trees grow in abundance. Except in the high mountains, most of the land is forested. Forests support important lumber industries in all three countries of Fenno-Scandia.

A Varied Climate. All of Fenno-Scandia lies between 55° and 71° north latitude. At these high latitudes the sun is never high in the heavens, even in summer. On the brightest day, the light is never intense, and the sun throws long shadows.

The days are very long in summer and very short in winter. In June, at Oslo and other places along the 60° parallel, the sun rises about 2:30 A.M. and sets about 9:30 P.M. The sun is above the horizon for almost 19 hours. In December, the sun does not rise until about 9:00 A.M., leaving only about six hours of daylight. It is barely light when the children go to school and almost dark when they go home. In winter, stores and factories use artificial lighting all day.

The dark streak that looks like a river shows where two mountain glaciers have joined. (Swiss National Tourist Office)



Sogne Fjord, an arm of the Norwegian Sea, is the longest and deepest of all fiords. It is more than 100 miles long.
(Henle from Photo Researchers)

Land of the Midnight Sun. At the Arctic Circle, on June 21 the sun does not set at all, nor does it rise at all on December 22. At the northern tip of Norway, the summer sun stays entirely above the horizon for two whole months. This is why the northern tip of Fenno-Scandia is called the *land of the midnight sun*. In the winter, the sun stays below the horizon for two months, though there is some light reflected from the sky during part of each day.

Climatic Differences. Earlier this year we learned that the North Atlantic Drift brings a temperate marine climate even to parts of Fenno-Scandia. Much of the western coast of Norway has this type of climate. Even close to the Arctic Circle the Norwegian fiords are usually ice-free in winter. However, many ports on the Baltic Sea, much farther south, freeze over in the winter. When we learn about the geographic features of the region, we shall understand why this is so.

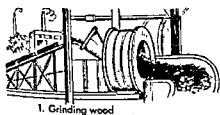
First, the Baltic Sea does not benefit from the influence of the North Atlantic Drift, which sweeps up the west coast of Norway. To the east, latitude and altitude become the most important factors in the weather as the influence of the North Atlantic Drift diminishes.

Second, the mountain backbone of Fenno-Scandia acts as a climate divider as well as a divide for the rivers. The warm moist air that blows in from the sea over Norway cannot pass over the high Jotunheim and Kjolen mountains. If you look back at the maps on pages 15 and 319, you will see that the mild, rainy, marine climate stops at this mountain range. To the east of the mountains, the climate becomes colder and drier as the latitude and height above sea level increase. In the high mountain region of northern Fenno-Scandia, the climate is just like that of the Arctic Fringe of Anglo-America, which you studied last year. This arctic or polar climate has long cold winters and short cool summers. There is little rain or snow, and only tundra vegetation, such as mosses and lichens, can grow during the brief summers. Except for a few inches of topsoil, the ground remains frozen all year round.

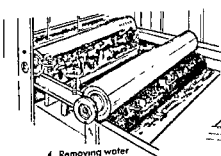
Southeastern Norway and southern Sweden and Finland have a humid continental type of climate like the other parts of central Europe. Between these regions and the frozen northern mountain lands there is a transition between the continental and polar types of climate. This transition climate is called a subarctic climate.

You can see that because of its mountains and range of latitudes, Fenno-Scandia has a variety of climates. In all three countries, most of the people live in the warmer regions.

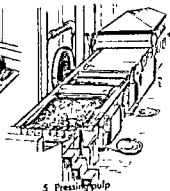
The forests of Scandinavia are a rich source of timber for the paper industry. Hydroelectricity provides the power to operate the paper factories.



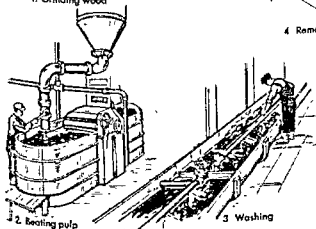
1. Grinding wood



4. Removing water



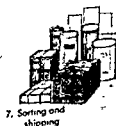
5. Pressing pulp



2. Beating pulp



6. Finishing process



7. Sorting and shipping

LIVING IN FENNO-SCANDIA

The countries of Fenno-Scandia have had many close associations with each other and with the country of Denmark. In the Middle Ages, first the Danes and later the Swedes dominated the area. The Finns were ruled by Sweden for many years. About ten per cent of the Finns still speak Swedish as their first language. Norway was united with Denmark from 1347 until 1814. It then formed a union with Sweden, which lasted until Norway became an independent country in 1905. It is not surprising that the languages of Norway, Sweden, and Denmark should be very similar. The Finnish language is quite different. It is unlike the languages of any of the countries around Finland.

Culturally, Fenno-Scandia belongs to Western Europe. All three countries depend on trade and manufacturing to maintain a very high living standard. All three countries have democratic governments subject to the will of the people. Free but compulsory education is provided by the state as it is in the United States.

How do so many people maintain a high standard of living in Fenno-Scandia? The answer to this question can best be found by seeing how people live in different parts of Fenno-Scandia. Although these countries have much in common, they still vary greatly in their resources and in the way the people earn a living.

The movement of glaciers has created many fiords in Norway. These fiords often make good natural harbors.
(Thor. Cook & Son)



The Fiorded Coast of Norway. The west coast of Norway, from its southern tip to North Cape, is about 1,100 miles long. If you were to measure in and out of all the bays and fiords, Norway's coast line would equal half the distance around the world. Along most of the coast, sheer cliffs rise steeply from the water's edge. Thousands of rocky islands border the shore. During the rather mild winter the coast is shrouded in low-hanging clouds and mist. Long narrow fiords of great depth cut up into the land for many miles between steep walls of rock.

Fenno-Scandia is the historical home of the Norsemen or Vikings, ancestors of the present Norwegians. The early Vikings were sea adventurers and explorers. Later the Vikings settled down to farming and fishing. Today about one third of Norway's people live along the fiorded coast. The largest population settlements are around the port of Bergen, Norway's second largest city, and along the Trondheim Fiord. Trondheim, the third largest city in Norway, was formerly the capital. An important lumber and paper industry draws upon the forests that clothe some gently sloping hills in the Trondheim region. The lower slopes and terraces bordering Trondheim Fiord have long established dairy farms.

Settlement on the rest of the fiorded coast is confined to small terraces or to sloping land near the fiords where we find small farms and fishing villages. Some farmers are part-time fishermen. Because of the cool rainy summers, crops are limited to potatoes, oats, hay, and feed beets. Most of the farm activity is centered around the dairy herd.

After the Soviet Union and the United States, Norway ranks third in the tonnage of its fish catch. The people of every village, town, and city along the fiorded coast are engaged in the packing and processing of fish products. Norway also has a large whaling fleet that operates in the Antarctic. This fleet supplies one third of the world's whale oil.

The number of people who can live by fishing or by farming on the narrow edges of the fiords is limited. As the population increased over the years, many Norwegians left their country to seek work elsewhere. Some have come to the United States. Many other Norwegians continue to follow the traditional life of the sea. Norway's merchant fleet, manned almost entirely by Norwegian sailors, is the third largest in the world. Her ships sail the seven seas carrying cargo from one port to another, sometimes not returning to the home port for two or three years. The fees earned by Norway's merchant ships pay for one third of the country's imports. No wonder that Norway's merchant fleet has been called her "floating empire"!

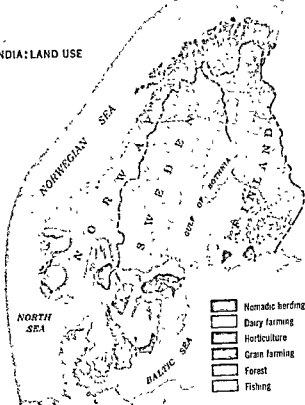
Norway is not rich in mineral fuels, but, of all the countries in Europe, Norway has the greatest number of streams that can be dammed to produce hydroelectric power. Moreover, most of these streams are in the south where the population is concentrated. Mountain rapids and rivers cascading over rock walls have been harnessed by numerous hydroelectric power plants. The electricity is used for power in the industries that employ much of Norway's growing population. Norwegian steel plants, which support a huge shipbuilding industry, are powered by electricity. Norwegian trains run by electricity. Small industrial towns have sprung up near power plants and mills. Small farms are being developed on every acre of fertile soil to supply food for the industrial workers.

Southeastern Norway. The most populous and important region in the whole country lies in the southeast around the capital, Oslo. The rolling hills of the Glomma Valley and the valleys of other streams draining into Oslo Fiord are the best forest land and the best farm land in Norway. The paper and pulp industry and the lumber industry are located here. The refining of light metals, such as copper and aluminum, is also important. One third of the workers in Oslo are employed in the metal industries.

Cod fishing off the northeast coast of Norway is very profitable. The cod-fish are hung for drying, before being packed for shipment. (Pratt from *Rapho-Guillumette*)



FENNO-SCANDIA: LAND USE



Southern Sweden and the Lake District. Most of Sweden's people live in the southern third of their country. The plains bordering the large lakes are the heart of Sweden. In many ways this area is similar to southeastern Norway, which it borders.

Like most of Europe, southern Sweden is quite densely populated. Stockholm, the capital, lies at the eastern end of the lake district. Goteborg, the chief port and second largest city, is at the western end.

Although there is some farm land on the coastal plains and the lake plains of southern Sweden, less than one third of Sweden's people are farmers. Because Sweden, like Norway, has a cool climate and short growing season, dairy farming is more successful than crop farming. However, hardy crops such as hay, oats, rye, potatoes, and beets are grown.

Industrial Sweden. Last year you learned that when ore contains a large percentage of metal it is called a rich deposit. Sweden has one of the richest iron ore deposits in the world. Sweden's iron ore is practically pure iron. High-grade ore has been mined for centuries in the Dal River Valley northwest of Stockholm. Valuable iron deposits are worked north of the Arctic Circle at Kiruna and Gallivare. Two hundred years ago Sweden was producing almost half the world's supply of iron and steel. Today Sweden ranks fourth in the world production of high-grade iron. Most of the iron ore mined in the far north is exported, but the ore mined in the Dal Valley is used at home.



Most Lapps are nomadic herders. Their herds of reindeer are a source of food, clothing, and shelter. (Swedish National Travel Office)

With such rich deposits of iron ore, it is not surprising to learn that most of the people of Sweden are engaged in manufacturing. Forty-three per cent of all workers are employed in the metal industries. Sweden's steel mills are noted for the manufacture of special kinds of steel. Ball bearings and high-grade cutlery stamped *Made in Sweden* are sold all over the world. Steel is also used to make ships, automobiles, and all kinds of machinery. Sweden is famous for the production of high-quality machinery for sawmills and paper mills.

In the Lake District and in southern Sweden are located half the paper and pulp mills of the country and a large number of sawmills. Wool and cotton textile mills and clothing factories employ almost as many workers as the lumber and paper industries combined. The manufacture of Swedish matches and glass is centered around the infertile, stony upland bordering Lake Vatter.

Norrland. The northern two thirds of Sweden, known as Norrland, is a hilly forested region with few people. The cool short summers greatly restrict farming. Only a few areas along the coast are cultivated. Most of the land is forested with pine and spruce. When the trees are cut, the logs are floated downstream to

the towns along the coast, where they are sawed into lumber or made into paper. At least half of Sweden's sawmills and paper and pulp mills are along the coast of Norrland. A great deal of the lumber and paper is exported.

Norrland is important also for the open-pit iron mines at Kiruna and Gällivare. The long, dark winters used to make mining difficult in these mines. Today the open-pit mines are easy to light by electricity.

Lapland, the home of the nomadic Lapps, spreads across northern Norrland and neighboring parts of Norway and Finland. For centuries the Lapps, a Mongolian race, followed their herds of reindeer across the tundra pastures paying no attention to national boundaries. They spent winters in the northern margin of the forests and summers on the tundra pastures.

Like the Eskimos in North America, however, the Lapps have been affected by the white men who have come north to work in the mines and forests. Today there are Lapps who still follow the traditional, nomadic way of life, but many have settled in permanent homes. Some operate small farms, while others work in the mines or mills. Those who live settled lives are eager to educate their children. Some Lapp students are already attending universities and technical schools.

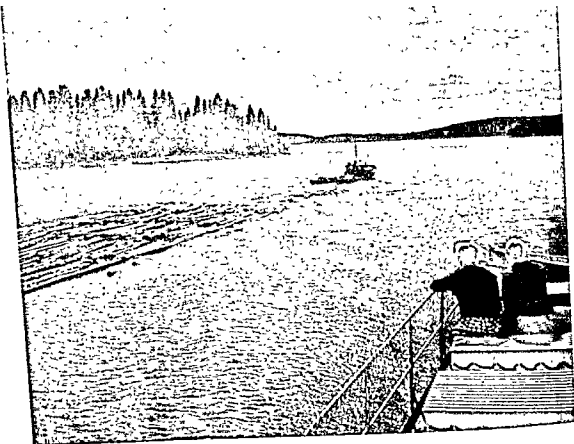
Southwestern Finland. Half of Finland's people live on the western coast of their country. Here the marine clays make a soil suitable for agriculture. This region is not so well developed as southern Sweden, but it is much better developed than Norrland, which lies opposite across the Gulf of Bothnia. The quality of the soil, however, varies from place to place. Forests of cone-bearing trees, which cover two thirds of Finland, extend into the agricultural areas. To provide farm land and food for an increasing population, large forested areas have been cleared and swamps have been drained. Almost half of Finland's people are farmers.

Helsinki, the capital and chief city, and Turku, Finland's third largest city, are both located on this western coast. Most of Finland's manufacturing is also done in this region.

In 1944 Finland was forced to give a large slice of her territory to the Soviet Union. The land given up included the city of Viiipuri and some of the country's best farm land. Plants producing nearly one third of Finland's hydroelectric power and many factories were also in the ceded territory. New homes had to be found for half a million people who fled rather than live under communism. Resettling these people and finding jobs for them were huge tasks. New farms, new hydroelectric plants, and new factories had to be built. Today Finland is a thriving country with growing industries.



Modern machinery is used in Swedish mines. This loader does the work of 40 men. (*American Swedish News Exchange*)



A large float of logs is being pulled to the lumber mill on one of Finland's lakes. (Hence from Photo Researchers)

The Finnish government has been conducting research in methods of farming in a cold climate. Researchers have developed plants that grow well in a cool, short, growing season. As a result, Finnish agriculture is surprisingly productive. Finland is almost self-sufficient in food except for wheat, which must be imported. Like the Swedes, the Finnish farmers specialize in dairy farming.

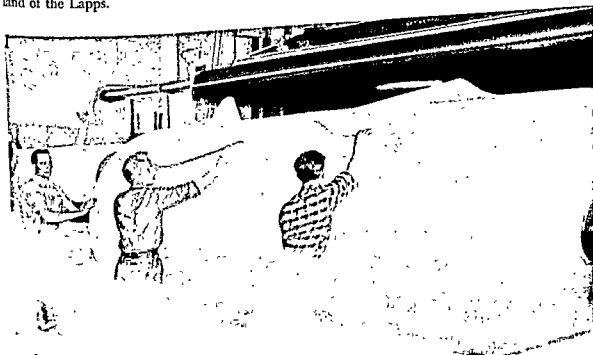
The raw materials for most of Finland's industry are the country's own forest products, which are much the same as the forest products of Sweden and Norway. Finland also produces large quantities of plywood and is known throughout Europe for the manufacture of prefabricated houses. Food processing, the manufacture of machinery, shipbuilding, and the processing of metals and textiles are among the important industries. Most factories are located in the coastal zone where it is easier to import raw materials and to export the manufactured products. Because Finland has no coal, much of her industry is run with hydroelectric power.

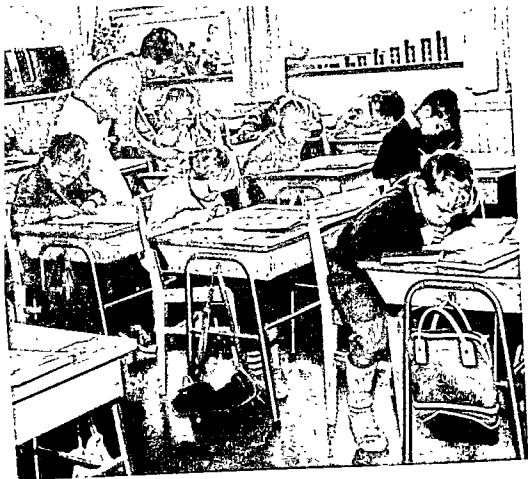
The Lake Plateau. Nearly all of Finland's 40,000 lakes are located on the Lake Plateau. This plateau occupies the southern third of the country inside the coastal zone. Almost half the surface of the Lake Plateau is covered by water. This is a land of pine and spruce forests. There are some farms, but they are small. The harsh climate limits the farmer to the cultivation of hardy food crops. Since the farms do not require full-time workers, many farmers work as lumbermen in the forests part of the year. Logs are floated on the lakes and connecting streams to pulp and paper mills or to sawmills. Some of these mills are on the Lake Plateau, but most are in the industrialized area near the coast. The principal city of the Lake Plateau is Tampere, second largest city of Finland and textile center of the country. Wool and cotton are brought to the city to supply the textile mills. Paper, leather goods, and machinery are also manufactured in Tampere.

In the eastern part of the Lake Plateau, at Outokumpu, lies the largest copper deposit in Europe. The ore also contains iron and sulphur, which are extracted from the ore after the copper has been removed. The sulphur is used in the manufacture of paper. The iron is converted to steel in Finnish steel mills.

Beyond the Lake Plateau stretch vast coniferous forests similar to the pine and spruce forests of Norrland. The forests thin out to the north and eventually become tundra, the summer pasture land of the Lapps.

Finland is second only to Canada in the export of newsprint. (United Nations)





Swedish education has been free and compulsory since 1842. Today Sweden has one of the highest literacy rates in the world. (Swedish National Travel Office)

THE SCANDINAVIAN MIRACLE

Some writers, noting the high standard of living maintained by the people of Fenno-Scandia in a region of harsh climate and limited resources, have called it the "Scandinavian miracle." It is true that these northern peoples are much better off than many who live in the Danube Plains, the Balkans, and the Mediterranean Basin. But their success is not a miracle. The people of Fenno-Scandia are benefiting from their excellent educational systems. They apply their knowledge and their skills to making the best use of their limited resources. Their seafaring skills help them to make a success of their great merchant fleets. They pay for imports of raw materials by producing manufactured products of high quality for which there is a steady demand on world markets. The people of Fenno-Scandia, through their social system and cooperative associations, share their skills, their goods, and their material wealth with their countrymen of all classes. There are few millionaires in this democratic land, but on the other hand there are few who go hungry.

18 The British Isles

A glance at the map of this region will show you that it is made up of two large islands and many small ones. The largest island is called Great Britain. The second largest you may recognize as Ireland. The greater part of Ireland is now an independent republic. A small section of Ireland belongs to the United Kingdom of Great Britain and Northern Ireland. This United Kingdom is often called Britain.

North of these two main islands are several groups of small islands. These are the Hebrides, the Orkneys, and the Shetlands, all of which belong to the United Kingdom.

The fact that the British and Irish people are islanders has affected the manner in which their nations have developed. The Strait of Dover, though narrow, has been an effective barrier in time of war. The sea has also provided these island people with a valuable water highway to other lands.

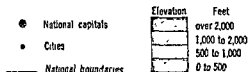
Although the British Isles are small in area, they were at one time the center of a world-wide empire. At that time the whole of Ireland was governed by England. British traditions have greatly influenced the life and laws of our own country, which was once a part of the British Empire. The remarkable history of the British people is due to their energy and wise use of their resources.

Landforms. Like Fenno-Scandia, the northern parts of Great Britain were once worn down by glaciers. In Scotland, at the northern tip of the island, this cutting away resulted in the formation of firths like those in Norway. The Scottish people call them firths instead of fiords, while their name for lake is loch. You have probably heard of the Loch Ness monster, which many people claim to have seen in one of the largest of the lochs.

The north of Scotland is more mountainous than the rest of the British Isles. The Scottish highlands are the highest and coldest part of these islands. South from the Scottish highlands is a much lower group of mountains called the Southern uplands. Between these and the Scottish highlands lie the lowlands. It is here that most of the Scottish population is found in the great cities of Edinburgh, Dundee, and Glasgow.

From Scotland, we can follow the Pennines, a low mountain range, southward into England. We find that they seem to have been broken up at their southern end into a scattered series of highlands in Wales and southwestern England. The Welsh and

BRITISH ISLES: PHYSICAL-POLITICAL



Scale of Miles
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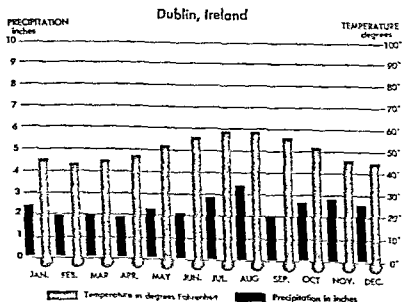


Scottish highlands are similar in that they have poor farm land and few people live in them. The lowland areas of Great Britain in the east are the most fertile farming areas in the whole region.

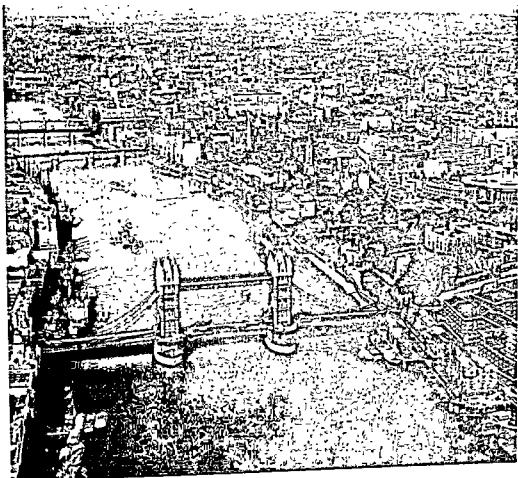
The division between hill country and plain gives Ireland a saucer-like appearance. Fairly high hills ring the island coast to the west, south, and north, almost encircling a plain area which opens eastward. The rivers of Ireland move rather slowly across the plain. Poorly drained land has formed a great many bogs and marshes in the low-lying midlands.

A Moist, Temperate Climate. The British Isles have a marine west coast climate, for when the westerly winds of the Atlantic reach the coast, they still carry much moisture. For this reason, western Ireland is by far the moistest part of the region, and eastern England the driest. The waters of the Atlantic that wash the southwest coast of Ireland are warmed by the North Atlantic Drift. The winds that blow in over these waters bring rainfall and moderate temperatures to the British Isles.

Plants and shrubs usually found in semitropical countries flourish naturally all year round in southwest Ireland. Misty weather, long periods of overcast skies, and year-round rainfall mark this climate. Despite the high latitude, snow is rather rare. Even in the highlands it is possible for livestock to graze outdoors all year. Water supply is not a problem in the British Isles. The abundance of fresh water is one of the chief advantages of the islands.



The marine west coast climate of Europe has mild winters and cool summers. Precipitation is evenly spread out during the year.



Lakes and Rivers. No mention of water would be complete without speaking of the many beautiful lakes in the British Isles. For centuries these natural lakes have been famous for their beauty and have attracted tourists from other lands. Among the better-known are the Lakes of Killarney in Ireland, Loch Lomond in Scotland, and a network of lakes in the part of England known as the Lake District, just south of the Scottish border. There are also many rivers and streams in Britain and Ireland. Although they are not long, these rivers are important as traffic waterways, as sources of water for industry, and as drainage outlets for the land.

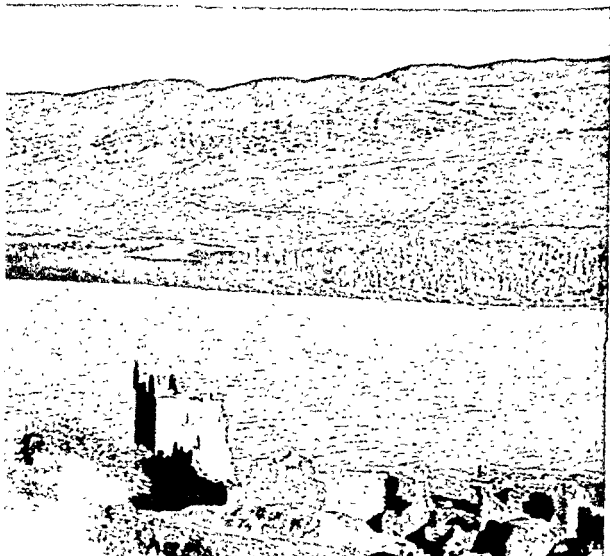
Many rivers in the British Isles form wide estuaries where they meet the sea. These estuaries form large natural harbors which make it easy to reach important cities. The Severn River ends in the Bristol Channel, serving the port city of Bristol in western England. The Forth River in Scotland ends in the Firth of Forth, on which Edinburgh is located. The Thames River estuary is the largest and most important of all. It provides a seaway on which large ships can travel up to London, the capital of Britain and the largest city in Europe.

Some of the world's best-known bridges cross the Thames River. In the foreground is picturesque Tower Bridge. Beyond it stands London Bridge of nursery-rhyme fame.
(British Travel Association)

The People. The people of Ireland, Northern Ireland, Wales, Scotland, and the southwestern tip of England are descendants of the Celts, a group of people who at one time lived in central and western Europe. The Celts who settled in Great Britain and Ireland managed to keep their native language and old national customs even when their lands were invaded by other tribes.

The English are descendants of the many peoples who invaded Great Britain in ancient times. Besides the Celts in the southwestern tip of Great Britain, there were Angles, Saxons, Jutes, and Norman French. Flemish weavers, French Huguenot businessmen, and other Europeans have also influenced English customs and language.

Scottish legends tell us that the Loch Ness monster first appeared in this beautiful lake during the 1200's.
(Hence from Photo Researchers)



Before the sixteenth century, the people of the British Isles were Catholics. From the fifth century on, Christianity made rapid headway there. St. Patrick, St. Columcille, and St. Augustine were the great apostles of Great Britain and Ireland. After the Reformation, most of the English, Scottish, Welsh, and Cornish people became Protestants. Ireland alone remained almost entirely Catholic.

Two Nations. Although we can speak of the British Isles in general, the people who live on these islands differ one nation from the other. As you read in the first paragraph of this chapter, today there are two self-governing parts of the British Isles. The larger of these nations is the United Kingdom of Great Britain and Northern Ireland. The smaller is the republic of Ireland. The United Kingdom includes the entire island of Great Britain and six counties in the northeast of Ireland. The republic of Ireland occupies 26 counties which make up the rest of Ireland. At one time there were several kingdoms on these islands, the ancient kingdoms of England, Ireland, Scotland, and Wales. Gradually they all joined to form two nations. Each of these areas has had a long and interesting history.

The Cultural Heritage. English is a common language for the peoples of the British Isles. However, it is not the only language. The Scots, Welsh, and Irish all have native languages. These Celtic languages are still spoken and used in newspapers and on television and radio programs. There are also local dialects on some of the smaller islands.

The laws and customs of England have been established for so long that they form a legal tradition for all the peoples of the British Isles. This tradition has been a unifying force among the various peoples. It was the most important gift our country received from its British settlers. According to British law, a citizen is entitled to a fair public trial for any crime of which he may be accused. He is presumed innocent unless definite proof of guilt is offered. His rights are protected by the courts even against the government. The British and Irish people cherish their right to worship God, to speak freely, and to make known their wishes to their governments. These rights and others were guaranteed to the British people under the Magna Carta and the Bill of Rights.

Advantages of Island Position. The sea around the British Isles has offered many advantages to the people who live there. Fish has always provided extra food, and the sea itself has been an open highway for travel. Long experience with the sea makes these island people good sailors. The British Navy is one of the finest in the world. Their closeness to the sea made it natural for the British people to seek adventure overseas. From the seven-

teenth to the nineteenth centuries they sailed to all corners of the world. They established colonies on every continent and built the world's largest colonial empire.

Although the British Empire no longer exists, English remains the official language of most of the former colonies. These countries are now independent nations. Most of them have joined a group of nations called the Commonwealth of Nations. Through this group the Commonwealth countries maintain their link with the United Kingdom.

Island position has also helped British trade. Bulky goods can be carried from place to place at the lowest cost by ship. Long ago Britain's merchants grew rich handling cargoes from Spain, Portugal, Flanders, and France. During the eighteenth and nineteenth centuries, British ships carried cargo to and from every corner of the British Empire. So great was the demand for tropical and oriental products that great seaports such as London, Liverpool, Glasgow, and Bristol became market places for much of the world. Today British automobiles, jet aircraft, and machinery of all kinds find a market in many countries. Britain was the first country to use atomic power for electricity, and British engineers have built atomic reactors in their own country as well as in foreign countries. Britain can still say with some truth that she is the "workshop of the world."

The United Kingdom still depends on sea transportation for nearly all her food supplies. The islands are too small to grow the large quantities of food needed for the millions of people who live there. Large amounts of food must be imported. Most of this food comes from Ireland and from the Commonwealth countries. Bread for the British people is made from wheat grown in Canada and Australia. Beef comes mainly from Ireland, Australia, and Argentina. Lamb is imported from Australia and New Zealand.

The United Kingdom also has to import many raw materials such as cotton, wool, tin, iron ore, and oil to keep its industries going. The United Kingdom pays for its imports by exporting manufactured goods.

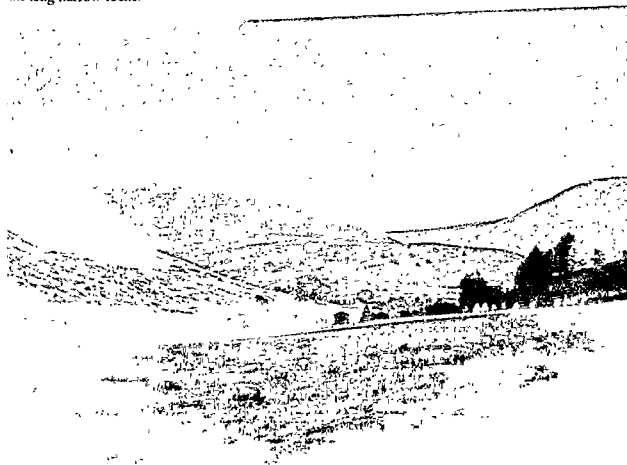
SCOTLAND

The people who live in the Scottish highlands are famous throughout the world. Perhaps you have seen examples of their colorful dress. The men of the highlands wear a knee-length pleated kilt which is almost like a skirt. Both men and women dress in gaily colored woolens, mostly plaids. You may have heard songs from the highlands, or the music of the bagpipes.

Although their customs are so well known, there are not very many people in the highlands. The land in this region is not rich enough to support a large population. As you can see from the map on page 222, it is the most sparsely populated area in the British Isles.

Farming in the Scottish highlands is not very profitable. The land is rugged and the climate wet and cool. Here and there a few Scottish farmers try to make a living on small subsistence farms called crofts. The crofters grow the oats, barley, hay, and vegetables they need, and they may keep a few cattle. The farmer can grow most of the food required for his family on the croft. But he has to have other employment to earn money to buy clothes, shoes, tools, and other things that he cannot produce on the farm. Some crofters work on the herring trawlers during the summer months while the women and children manage the farm. Other crofters find jobs helping the tourists who come to see the fiords and the long narrow lochs.

Much of Scotland's land is ideal for sheep grazing. (Hollyman from Photo Researchers)

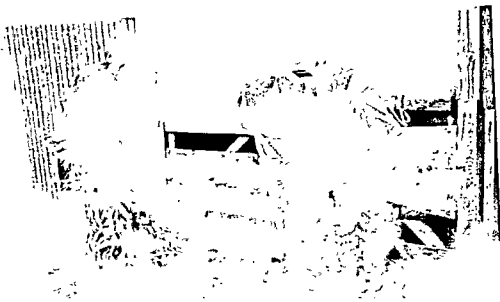


In recent years the government has tried to make life more pleasant for the highland people. New roads now make it easier to travel within the highlands. Small hydroelectric plants are providing electricity for homes and industry. Modern electric appliances, radio, television, and telephones have greatly changed the highlanders' way of life. The government is also encouraging business people to set up new industries in the highlands. In this way the young people can find work at home instead of moving to the cities.

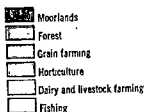
The Southern Uplands. The Southern uplands are lower and warmer than the Scottish highlands. Because grass grows well, the farmers have built up an important sheep-raising industry. This is one of the most important sheep-raising areas in Europe. A special type of black-faced sheep thrives in the Southern uplands. Its wool grows long and thick and protects the sheep during the cold wet winters. The long heavy fur of the collie dog who guards the sheep also protects him against the cold.

In the past, the sheep of the Southern uplands provided all the wool needed in the Scottish woolen industry. Now that the industry has grown, a good deal of the wool comes from Australia and New Zealand. Colorful tweeds and plaids made by Scottish weavers are sold all over the world. They are especially popular in the United States. Tweed is a type of hard-wearing cloth first made in the valley of the Tweed River. Now tweeds are made all over Ireland and Scotland. Each Scottish family or clan has its own plaid, or tartan, and is very proud of it. The Queen Mother, Queen Elizabeth, wears her family tartan whenever she visits her native Scotland.

At shearing time, wool is cut from the sheep. Shearing is usually done in late spring or early summer. (Henle from Monkmeyer)

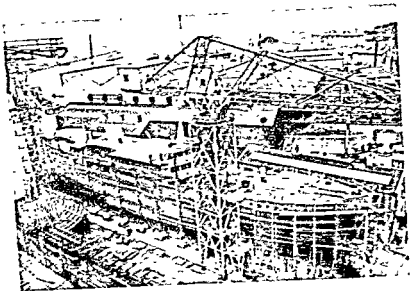


BRITISH ISLES: LAND USE



The Lowlands of Scotland. About 80 per cent of the Scots live in the lowlands. This section has become one of the most impressive agricultural and industrial centers in the British Isles. The lowland farms produce a variety of crops and livestock to feed the workers in the industrial towns. Ayrshire cattle, a breed prized for milk, are native to the lowlands. Much land is devoted to grazing and dairy farming. Vegetables for city dwellers are produced in large quantity. Extensive fields of barley provide the grain for the manufacture of Scotch whiskey.

In the east around Edinburgh stretch Scotland's richest croplands. The farmers use almost all the land in this area for crops. They follow a six-crop plan, rotating wheat with oats, potatoes, turnips, barley, and grass. The lowland farmer protects his fields from the cold northeast winds by planting narrow strips of woodland as windbreaks.



Many famous ships have been built in the shipyards of the Clyde. (British Information Services)

Most wage-earning workers in the lowlands are employed in mining or manufacturing. Coal exists in large quantities along the edge of the lowlands between the Firth of Clyde on the west and the Firth of Forth on the east. The Scots were the first to develop heavy industry of world-wide importance based on coal and on rather small deposits of iron ore. In addition, their use of coal for power enabled them to build larger woolen textile mills. Later, when industry began to be fueled by oil, the Scots had good ports through which to import it. Today Scottish industry is beginning to use atomic power.

At the western end of the lowland industrial strip stands the great port city of Glasgow. Glasgow is one of the largest shipbuilding centers in the world. Here the giant transatlantic liners *Queen Mary* and *Queen Elizabeth* were constructed. World-wide trade is carried in and out of Glasgow through the deep channels kept open in the Clyde River. Raw materials such as iron ore, cotton, timber, and oil are brought in from all over the world. Glasgow is also the outlet for Scottish textiles, paper, liquor, machinery, and steel products.

Edinburgh, the capital of Scotland, is a center of culture, art, and education. It is connected with Glasgow by river and canal networks. The University of Edinburgh is one of the most famous in Europe and has long been a center of medical research. Tourists who visit Scotland try to be in Edinburgh for its annual festival of music. The people of Edinburgh are justly proud of their fine city. They call it the "Athens of the North" because it is such an important cultural center. The city is also a major publishing center for the United Kingdom.

ENGLAND AND WALES

If England's great poet Shakespeare could revisit his native land today, he would still recognize many parts of it. Some of the towns and villages have hardly changed since the sixteenth century. The ancient colleges of Oxford and Cambridge and the castles of Warwick and Hereford are still standing. The soaring cathedrals of Canterbury, York, Wells, Salisbury, and Ely also look much the same as they did 400 years ago, although most of the streets around them are very different. In the rural areas, Shakespeare would recognize the carefully cultivated, hedged-in fields. However, he would be astonished to see farmers using tractors, plows, and reapers, and to hear modern jet planes roaring overhead.

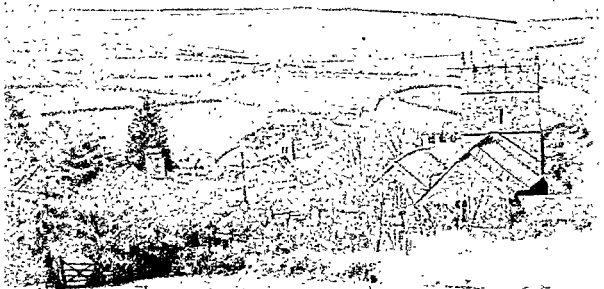
The changes brought about by the Industrial Revolution would surprise Shakespeare very much. In his time most of the people of England lived on farms and in villages in southern England. As a result of the Industrial Revolution, England became the most

BRITISH ISLES: INDUSTRIAL REGIONS

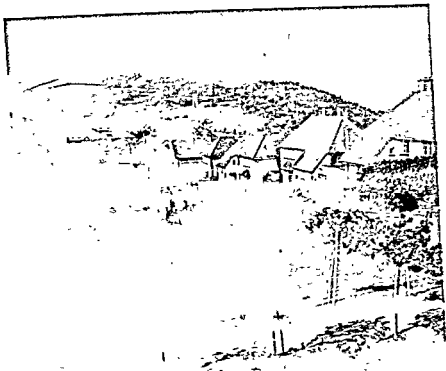


BRITISH ISLES: IRON AND COAL DEPOSITS





(Above) The English countryside, with its small villages, stone churches, and fertile fields looks very peaceful. (*Three Lions*) (Below) From early spring to late fall the gardens of most British homes are gay with color. (*Goldman from Rapho-Guillumette*)



important industrial country in the world. Many thousands of people left their farms and villages to work in the mills and factories that grew up on the coal fields of northern England. Today nearly four fifths of the English people live in large industrial cities. Only six per cent remain farmers, but they are among the most efficient farmers in Europe.

Southern England. Most of England's farmers live in the south, where the best farm land is found. The flatness of southern England makes the land suitable for farming. Except for two small areas in the southwest, this fertile area is less than 1,000 feet above sea level. As you might expect in a marine west coast type of climate, all parts of southern England receive enough rain for farming.

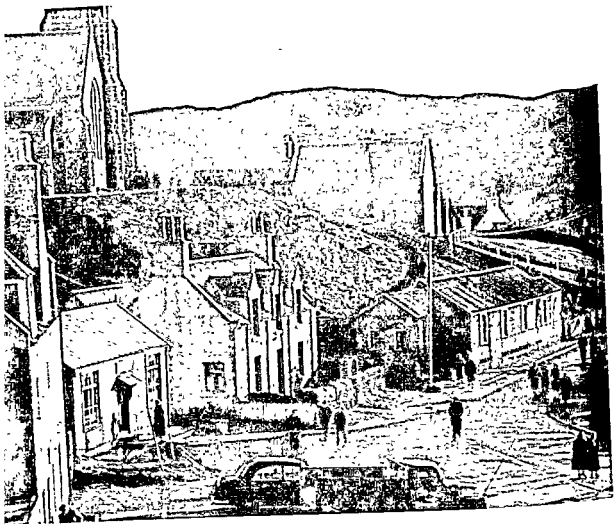
The English farmer has inherited a love of the land. Because he cultivates it carefully, he can grow much food for the people in the cities. Large quantities of fresh milk, meat, and vegetables are needed in the cities every day. In the west and west-central parts of the country, where the climate is wetter than in the east, the farmers keep much of their land in pasture. They raise beef cattle and dairy cows on the pastures and sell the meat and milk to nearby cities. In the drier eastern parts of the country, where grain crops can be grown, farmers combine grain farming with dairy farming.

Three districts of southern England specialize in fruit and flower growing. The farmers in the western or Cornish Peninsula take advantage of the mild winter and early spring to grow spring flowers, fruits, and vegetables. They can get a good price for these products in the cities early in the season.

Kent, in the southeast corner of England, is sometimes called the "garden of England." Kent has thousands of orchards and vegetable farms. In spring the mass of blossoms on the fruit trees is very beautiful. Cherries, plums, pears, and hops—which are used to make beer—are Kent's major crops.

England's other fruit-growing district is the lowland area called the Fens. The Fens are located along the east coast near the large bay called the Wash. The farmers of the Fens cultivate their land very carefully. Like the polderlands in the Netherlands, the Fens were reclaimed from the sea. The farmers of the Fens grow special high-value crops such as tulips, flower bulbs, small fruits, and vegetables.

Industrial England and Wales. We have seen that southern England is mainly agricultural. In Wales and northern England, on the other hand, there is little land suitable for farming. Most people work in large industrial cities on the coal fields around the Pennine Mountains and the mountains of Wales.



This Sunday morning scene with the people making their way home from church was photographed in a Hebrides village. [Standard Oil Co. (N.J.)]

The Pennines form the heart of industrial England. Although the mountains are not high, few people live in this region. The soils are not fertile, and the moorland vegetation does not provide good grazing for sheep or cattle. Located in the Pennines are the reservoirs which supply water to the bordering industrial cities.

On the edge of the Pennines, the scene changes. Large factories and industrial cities have grown up on or near coal fields that circle the southern half of the mountains. There are five main industrial areas. In northeastern England a cluster of industrial cities have grown up around the Tyne River. One of them, Newcastle, was an early center for the British coal industry. Coal was first mined at Newcastle during the sixteenth century. So much coal has been dug out since then that miners now travel several miles underground to reach the coal seams. Some of the mine shafts stretch out under the sea!

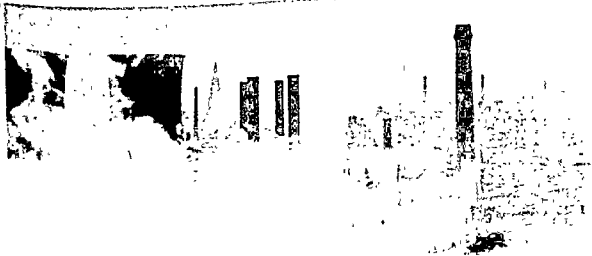
Newcastle coal is excellent for coking, so it is fortunate that iron ore is also found nearby. Using these resources, the people of Newcastle have built an iron and steel industry which produces half of all the steel made in England. The valleys of the Tyne and the Tees have many steel mills. Not all the iron ore needed is found locally. Additional supplies are imported from Sweden, Newfoundland, and Spain.

Farther south is the Yorkshire industrial area with Sheffield at its center. The iron and steel industry of Yorkshire is small, but the steel is of good quality. Sheffield steel workers are skilled craftsmen. For centuries the name "Sheffield" has stood for high quality cutlery and other steel goods.

Yorkshire is also famous for its woolen goods. Here the world's largest woolen industry is centered in towns like Leeds, Huddersfield, Bradford, and Halifax. Originally the weavers used local wool from the sheep raised on the Yorkshire moors. Now additional wool is imported from Australia and New Zealand, the world's major sheep-raising countries.

Still farther south is England's third large industrial area, the Midlands. Birmingham, Leicester, Coventry, Nottingham, and Stoke-on-Trent are important cities of the Midlands. But there are factories in nearly all the other cities that you see on the map. There are so many coal-burning industries that the sky is nearly always filled with smoke. People have named this area the "Black Country." Each city tries to specialize in one or more industries. Birmingham, for example, is the center of the engineering industry. Nottingham concentrates on hosiery and knit goods. Leicester manufactures shoes, leather goods, and lace. Stoke-on-Trent specializes in making pottery. Coventry has an important automobile industry.

Yorkshire has a small iron and steel industry as well as a thriving textile industry. (British Information Services)

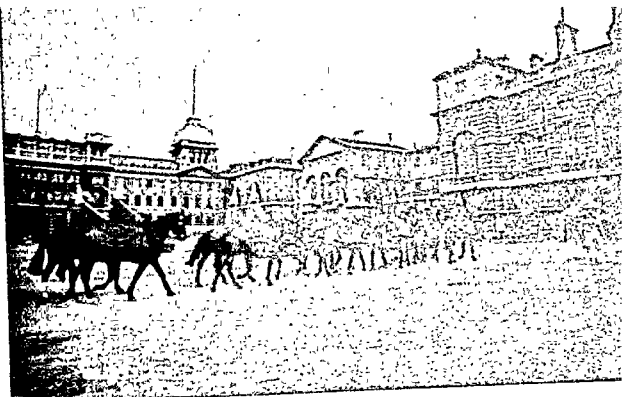


North again and west of the Pennines are the manufacturing towns of Lancashire. Lancashire and Yorkshire are the center of Britain's textile industry. In many Lancashire towns, such as Manchester, bales of cotton are spun and woven into cotton thread and cloth. Lancashire, like its neighbor Yorkshire across the Pennines, also has many woolen mills.

During the seventeenth century, the people of Lancashire were already skilled as spinners and weavers of woolen thread and cloth. When the United States began to export cotton, Lancashire weavers switched to making cotton cloth. It was easy for Lancashire to import the raw cotton from the United States through the port of Liverpool. Another advantage that made Lancashire suitable as a center for cotton textiles was the humid climate of the region. The cotton threads, which become brittle in dry climates, do not break in Manchester's damp climate. For many years, England's cotton industry had little competition on world markets. Today countries in Africa, Asia, and South America that used to buy Lancashire cloth have learned to manufacture their own textiles. Many Lancashire mills now manufacture nylon and other synthetic fabrics.

Separated from the great industrial belt that lies near the Pennines is another great industrial center in Wales. The land here is mountainous. The relatively few lowlands are not broad enough to support much agriculture. Wales has much of the same type of hard-rock highland found in northern Scotland. There is grazing of beef cattle and some dairy farming. As in England, food is imported to feed the people of the Welsh cities.

The United Kingdom is one of Europe's leading producers of steel. (*British Information Services*)



The Changing of the Guard at St. James' Palace is a very colorful event. It is a great honor to be a member of the Queen's Guard. (McCartney from Photo Researchers)

Wales, like England, has large coal deposits. The main deposit lies between Swansea and Cardiff. The heart of industrial Wales lies along that same line. This is the only deposit of any importance in the British Isles of the very hard coal called anthracite. In the past, anthracite was in much demand as fuel for steamships because it burned with little smoke. Now that most ocean-going ships use liquid fuel, this market has disappeared. Many Welsh coal mines had to close when petroleum began to compete with coal as a fuel. With their closing, an era of prosperity ended for many miners in the small Welsh towns. Few Welsh men now become miners. They work instead in other industries or leave Wales to work in England.

The mining of coking coal has remained important in South Wales, where there are several excellent deposits. This has encouraged the iron and steel industry. At Swansea a steel mill almost four and a half miles long has been built. Here all phases of steel production, from the smelting of the ore right through to the manufacture of steel bars and sheets, are carried on under one roof. This one mill produces about one third of all the sheet steel made in the United Kingdom.



LONDON

London is a big busy city. At Piccadilly Circus, in the heart of London's best shopping district, people and vehicles crowd the streets. (Goldman from Rapho-Guillumette)

The great city of London is surrounded by rich agricultural land, yet it is the country's largest manufacturing center. Located 60 miles from the sea on the Thames River, London is one of the world's greatest ports.

London, which started as a Roman fort, has been a center for government and military activity since its earliest days. Because of its location on the Thames River within easy reach of the sea, London became a transportation and trade center for all of eastern England. Traders came to London by land and sea. By the sixteenth century London was one of the world's greatest trading centers. It has retained that status ever since.

During the nineteenth century London became the capital of an empire, as well as a trading post for much of Europe's water-borne traffic. Furs and grain, gold and cotton, and all sorts of other products were traded by London merchants and brokers. Some of the goods received at the docks or in the warehouses were shipped to other cities. Many more remained in London to be used as raw materials for industry. Sugar refineries, soap factories, and iron works grew up in and around the city. London was one of the first cities in the world to have modern oil refineries. Many of these industries developed because raw materials could easily be imported and goods exported through the port of London.

Special kinds of businesses came to be centered in London. The Bank of England, with its headquarters in London, became one of the most powerful banks in the world. Lloyd's of London is still the most powerful insurance company in the world. As one might expect, Lloyd's of London had its start insuring ships and

their cargoes. Another very important industry in London is book publishing. Books are printed here for publishing companies all over the world, including some for our own country.

An important district of London is Greenwich, where the Royal Observatory was located for many years. Through Greenwich passes the 0° longitude line, or Prime Meridian. The Prime Meridian is on a great circle that goes through the North and South poles. Geographers agreed long ago to accept Greenwich as the starting point from which to number the meridians marking the degrees of longitude.

Many sights of interest are found in London. In addition to the many bridges and the twenty-five miles of docks and wharves, there are places of historic interest that are world-famous. Here are London Bridge and the Tower of London in which many famous prisoners were confined. The Houses of Parliament, Buckingham Palace, and Westminster Abbey are impressive not only for their present-day role, but also for their glorious past. Visitors to London are especially eager to watch the colorful Changing of the Guard at Buckingham Palace or St. James' Palace every morning.

IRELAND

The geography of Ireland, the second largest island in the British Isles, is much less complex than that of Great Britain. Ireland is often called the Emerald Isle because the land is almost completely carpeted with thick green grasses. The mild temperature and plentiful rainfall make the island lush and green, and its lack of coal or other minerals has kept the way of life agricultural rather than industrial. Most of the people are farmers.

For festivals in Ireland, children dress in Irish costumes which resemble Scottish kilts. These children are dancing a three-hand reel. (Irish Tourist Office)





The land in Ireland's western province must be cleared of stones before it can be farmed. The gathered stones are often used to build walls. (Henle from Photo Researchers)

After Ireland became an independent nation in 1922, the government began a program to supply electric power for the homes and the industries of the whole country. The Shannon River, the longest river in Ireland, was harnessed. The project was completed in the 1950's. Another successful government plan has been to develop the use of peat from the very extensive bog-lands. The peat is used instead of coal as fuel in homes and industries.

In Northern Ireland, which is part of the United Kingdom, there is more industry than in the republic of Ireland. Belfast, the capital of Northern Ireland, has a fine harbor and is an important shipbuilding center. Belfast depends on imported oil, coal, and iron for its raw materials, and its port is necessary for its survival as an industrial center. Londonderry, another city in Northern Ireland, is the center of the linen industry. Flax is grown extensively in the Londonderry area. The flax fiber is converted into linen cloth.

WORKSHOP

I. CHAPTER REVIEW

A. Terms to Know

United Kingdom
Commonwealth of Nations
plaid
tweed
croft
linen

"free port"
Prime Meridian
peat
coal seam
anthracite
emigration

B. Places to Locate

Great Britain
Ireland
Scotland
Wales
London
Manchester
Greenwich

Dublin
Belfast
Shannon
Pennines
Edinburgh
Glasgow
Scottish Highlands

C. Review Questions

1. Be able to distinguish between the following terms: England, Great Britain, the United Kingdom, and the Commonwealth of Nations.
2. Give two reasons why the population of the British Isles is concentrated in the lowlands.
3. How do climate and terrain influence agriculture in the British Isles? What kind of farming is most common here?
4. Why is the mining of coking coal important in south Wales?
5. How do you account for the decrease in population in the republic of Ireland?
6. What are the most important uses for the rivers of the British Isles?

II. OBSERVATION ROOM

1. Using a globe, find those regions in northeastern North America that have the same latitude as the British Isles. Now look up and compare their average yearly temperatures. How do you explain the mild winters of the British Isles?
2. Locate England and India on your globe. Which country is smaller in size? Which country has the lower standard of living? How do you account for England's prosperity despite its size?
3. Use a map of the world to find the nations that belong to the Commonwealth of Nations. Why is it beneficial to these nations to remain linked to Great Britain?

III. THOUGHTFUL CORNER

1. How have the people of England attained such a high standard of living? Is the country especially rich in natural resources?
2. Why did Lancashire become the center of the British cotton textile trade? Would the conditions that helped the cotton trade help the manufacture of nylon goods today?
3. Name the major problems facing the peoples of Ireland and Wales. Can you think of anything that could be done to solve their problems?

IV. RESEARCH DEPARTMENT

A. Geographers in Action

1. Make a map of the Industrial Belt of England. Mark the major cities and include pictures of the main products manufactured in each.
2. This month your tourist agency is offering a special trip to the British Isles. Prepare pamphlets, posters, and displays that can be used for advertising this trip.
3. Find out about the early missionaries to the British Isles, such as St. Patrick, St. Columcille, and St. Augustine. Find out the role of Irish and English missionaries in re-Christianizing Europe after the barbarian invasions of the fifth century.
4. Write and act out an assembly play to demonstrate the culture of the peoples of the British Isles. You will probably include in your program an English Morris Dance, a Scottish Highland Fling or Sword Dance, a Welsh choral selection, and Irish jigs or reels.

B. Readings

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- Garnett, Henry. *A Trumpet Sounds*. Garden City, N.Y.: Doubleday & Co., Inc., 1962.
- Griffith, Wyn. *Wales in Color*. New York: Hastings House, Inc., 1961.
- Hart, John Fraser. *Ireland*. Garden City, N.Y.: Doubleday & Co., Inc., 1957.
- Sasek, Miroslav. *This Is London*. New York: The Macmillan Co., 1959.
- Willard, Barbara. *Augustine Came to Kent*. Garden City, N.Y.: Doubleday & Co., Inc., 1963.

19 The Political Units of Europe

There are nearly 40 nations in the regions you have studied. Almost 30 of these nations are in Europe. Many times in this book you have read the term *nation*. Have you ever wondered just what the word *nation* means?

Perhaps the best one-word definition of a nation would be the term *togetherness*. As you know, the smallest unit of people living together is a family. Way back in history families began to form groups. Groups of families living together shared experiences. Whether people shared success or suffering, they gradually grew closer to each other. This feeling of belonging together is called nationalism. Nationalism may grow from the sharing of history or the experiences of the past. It may also grow where people belong to the same race, have the same language, or share the same religion.

Customs and traditions are important to people. Wherever Christmas is celebrated throughout the world, men think of the birth of Christ. But each nation celebrates its festivals in its own special way. When people share the same language or the same customs, they may develop a feeling of togetherness because they know they are different from their neighbors. This feeling of togetherness, of belonging to one place, creates a national spirit which is important to the existence of a nation.

From the sixteenth century on, when books and newspapers began to be printed, ideas began to circulate more rapidly than before. The number of schools and universities and of students attending them increased. As education spread, large groups began to share the same ideas. A pattern of ideas and ways of acting and thinking was gradually established within a nation.

In your study of the regional geography of Europe you have learned about the physical features shared by the countries within different regions. Now you are going to look at some of those same countries again, but this time you will view each as a political unit—a nation. Politics is the name we give to the ways in which men govern themselves and establish a way of life as a nation.

EUROPE: COMMUNIST AND NON-COMMUNIST

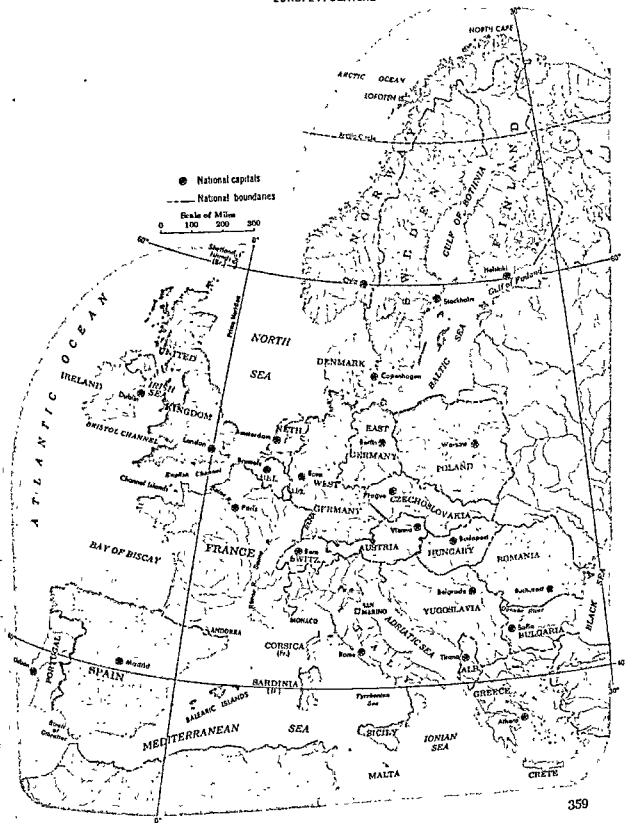
☐ Communist
☐ Non-communist



Ever since the end of World War II, Europe has been divided into two main groups of nations with different ideas about how the world should be governed. On one side are those nations whose political systems are founded on ideas of freedom of choice in matters such as government, work, and religion. These are the nations of Western Europe. Sometimes they are called the democratic nations or simply the West. The greatest problem the West faces today is how to protect its Western civilization and its ideas of personal liberty and still live in peace with people who have other ideas. Important among the Western nations are Britain, France, West Germany, Italy, Norway, and the little countries of Denmark, Belgium, the Netherlands, and Luxembourg.

On the other side is the Communist group which includes the Soviet Union and the nations in Eastern Europe where the Communist Party is in control. This group is often spoken of as the East. The leaders of these countries want all the world to be Communist. In nations where the Communists are in power, the state owns and controls all industry and communications. The government attempts to crush all religion and to deprive the people of many rights, such as freedom to travel abroad. And, most important of all, the people are not free to choose their leaders or to

EUROPE : POLITICAL



make their wants felt. Farming is organized into collectives or state farms wherever possible, and the farmer cannot even choose the crops he will grow. The Soviet Union is the leading nation of the East. Her close allies in Europe are Hungary, Poland, Czechoslovakia, Romania, and East Germany.

Many nations in Europe and the Mediterranean Lands have refused to join either the West or the Communist world. Among these nations, known as neutrals, are Switzerland, Finland, Sweden, Austria, and most of the lands you studied in Southwest Asia and North Africa. Yugoslavia is a Communist neutral; that is, the government of Yugoslavia is controlled by a Communist Party, but the country is not dominated by the Soviet Union.

This chapter reviews the political situation in France, the British Isles, and the nations of central and northern Europe. You have learned about the politics of the Mediterranean Lands when you studied this region in earlier chapters.

FRANCE

In the long history of Europe, France holds the most prominent place of any nation north of the Mediterranean. At one time the Romans called this land Gaul and sent legions of soldiers to subdue the people. Roman influence spread quickly, and after it came Christianity, Roman roads crossed the land. Marseille, Lyon, and Bordeaux became important cities. After the decline of Roman power, France gradually grew in strength until it became a nation of great power in Europe. Today France is one of the most influential European nations.

France is highly favored by its geographical position. Its long coast line gives many excellent opportunities for trade, for world communication, and for fine fishing. Mountain boundaries hem in large sections of the country. Navigable rivers and canals make internal communications easy. These features help to unify the people.

Several natural regions lie within the boundaries of France. The Mediterranean Midi lies between the Pyrenees on the southwest and the Alps on the east. The Rhone-Saone Valley separates the Alps from the large Massif Central. To the west of the Massif lies the lowland of the Aquitaine Basin. This lowland is connected on the northwest with Maritime France and on the northeast with the great Paris Basin lowland. On the northeastern border with Germany lies the small but very important French section of the Continental Industrial Region.

The French people are freedom-loving. They have preserved the French nation in spite of many wars fought on her soil and defeat at the hands of her enemies. In recent times, alliances with

the other Western powers, including the United States, brought France back to power after World War II.

A few years after the American Revolution, the French revolted against their king and his rich and unjust princes and lords. In the years since the French Revolution, France has been at times a republic, at other times a monarchy or an empire.

France today is ruled by a president and a legislature consisting of two groups, the Council of the Republic and the National Assembly. There are a number of political parties.

French exports can be relied upon for their excellence in craftsmanship, artistic taste, and originality. Clothing, perfumes, wine, and cheese are among the exports for which France is world-famous. Imports include cotton, oil, coal, and many tropical products such as tea and coffee which cannot be grown at home.

France once had a great overseas colonial empire. Little by little, parts of her empire gained their independence. Some of the equatorial African states—at one time French colonies—still have links with France. Others are completely independent nations.

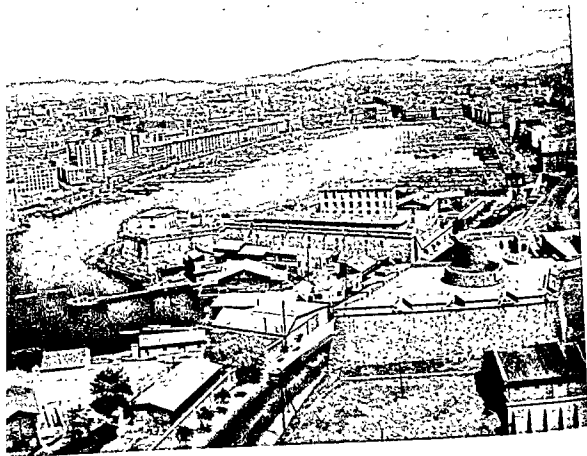
The British Isles

THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

England, Scotland, Wales, and Northern Ireland make up the United Kingdom. The history of these nations dates back many, many centuries. During the commercial and industrial revolutions, England built an empire by acquiring territories and colonies in all parts of the world. At the height of its power, the British Empire ruled over one fourth of all the people in the world. Today, the Empire has shrunk. Some of the former members of the Empire are now linked together in the Commonwealth of Nations.

The government of the United Kingdom is in some ways the most stable one in Europe. Its tradition of gradual change in law and custom and its unity under the crown have helped it to adjust to great crises in the past.

Since World War II, many former British colonies have gained independence. But Britain still has an important voice in world affairs. Its recent history has proved that free people, willing to defend their liberty, can save their nation and help restore freedom to lands that may have lost it.



Marseille is a gateway opening on the Mediterranean. Ships from here carry passengers and cargo through the Mediterranean Sea to ports all over the world. (Moulin from Shostal)

IRELAND

The second nation in the British Isles is Ireland. The island of Ireland is divided into two unequal parts: the smaller section in the north is part of the United Kingdom; the larger section is the independent republic of Ireland. After centuries of British rule, the Irish won their independence in 1921. Disputes over political questions at home led to a bitter civil war that ended in 1925. At that time Northern Ireland decided to remain in the United Kingdom. Some years later the rest of the island became the republic of Ireland and withdrew from the British Commonwealth of Nations.

The Irish nation had maintained its identity and unity through centuries of foreign rule, clinging to its Catholic faith. The British had tried unsuccessfully since the sixteenth century to persuade Irish Catholics to become Protestants. The Irish, by encouraging the people to retain their Gaelic language and their traditional games, kept alive the Irish national spirit.

Ireland depends largely on its agriculture. It exports beef cattle, horses, and large quantities of meat and dairy products. Very little

industry existed in Ireland up to the 1950's, but the government is now encouraging the development of light industry.

Ireland's trade is mostly with Great Britain. Politically, the Irish people's sympathy is with the Western nations. But in the United Nations, Ireland has often voted with the neutral nations. The Irish people support their government in this to assert their independence and to draw the attention of the free world to the partition of Ireland.

Landlocked Nations

AUSTRIA

Austria is a small republic in central Europe. Its people speak German, and its culture is closely related to Western Europe.

Austria was once part of the powerful Austro-Hungarian Empire which covered a vast area in central and eastern Europe. When the empire was defeated in World War I, Austria became a mere shadow of its former greatness.

Austria was swallowed up by Germany before World War II. As part of Germany, Austria went to war, suffered defeat, but eventually gained independence. Not until 1955, however, did it regain full charge of its own affairs. Austria is officially neutral in European politics. It is an interesting fact that, in spite of its location next to Communist, iron-curtain countries, this small nation is still free and non-Communist.

Austria's national income comes from agriculture, industry, and a flourishing tourist trade. In spite of this, it is difficult for Austria to balance its import-export trade. Large quantities of food, and raw materials such as coal, cotton, and wool must be imported. Iron ore, steel, and forest products are exported but not in sufficient quantities to pay for the imports.

SWITZERLAND

Switzerland brings to mind the Alps, dairy products, and fine watches. These are all very important for the Swiss people today.

In 1291 three cantons, as the subdivisions of Switzerland are called, banded together for protection. The nation has grown until at present it has twenty-five cantons.

The Swiss people speak German, French, and Italian. They form one of the most stable states in existence today. The nation holds a position of importance in international affairs. It is also an excellent example of democracy for the nations of the world.

Many of the cantons are small enough to allow the people to attend open-air assemblies and there cast their votes or express their opinions on federal laws. There is complete freedom of religion in this Christian nation.

The Benelux Nations

Three small countries in northwestern Europe occupy a triangular area north and east of France. They are Belgium, the Netherlands, and the tiny country of Luxembourg. The word Benelux is made up of the first letters in the names of the three countries. Each nation is self-governing, but all have agreed to share their economic and cultural resources.

Each of the Benelux countries is a constitutional monarchy. The head of state inherits the throne, but the constitution, or system of law, limits the powers of the monarch.

BELGIUM

Belgium has been an independent state only since the year 1831. Located between France and Germany, it was a battlefield in many wars and was under foreign rule for centuries. This small nation attempted to remain neutral in both world wars but was invaded by German armies attempting to reach France. Belgium suffered greatly in these wars but recovered quickly.

Belgium today is a democratic kingdom, and most of the people are Catholics. The Belgians have a high standard of living, and they prize many treasures of art and architecture in their beautiful old cities. French-speaking Walloons live in the southern parts of the country. Flemish is the language in the north of Belgium. More than half the people earn their living in industry or mining, for Belgium occupies part of the Continental Industrial Region of Europe. The country exports large quantities of chemicals, steel, and textiles. More than half the land surface of Belgium is farm land or pasture, but the Belgians must import food to help feed the large numbers of industrial workers.

THE NETHERLANDS

The Netherlands has been able to expand its homeland without conquering any neighboring country. Hundreds of square miles of polderlands, recovered from the sea, are used for farming or pasture.

The Netherlands is a monarchy, ruled today by a queen and governed by a premier and parliament. It was once part of the Roman Empire, and in spite of its small size played an important part in world history. Dutch seamen built up a fine navy and merchant fleet which took part in the exploration of the New World

American children call this jolly old man Santa Claus, but to Dutch children he is St. Nicholas. The costume and setting is different, but the spirit is the same. (KLM Photo)



and developed trade routes to Asia. Beginning as traders, the Dutch gradually set up an empire in the seventeenth century. They sent colonists to North and South America, to the southern tip of Africa, and to the East Indies. Most of the lands of the old empire are now *independent nations*.

The Netherlands was neutral in World War I. It wanted to be neutral in World War II but was invaded by the Germans and occupied for five years. After the war the country built up trade and commerce quickly and regained an important place among world nations.

A great river, the Rhine, meets the sea inside the borders of the Netherlands. The great waterways thus formed are of much value to the nation. Trading and shipping provide the Dutch with the bulk of their income.

Formerly the scene of bitter religious wars, the Netherlands is today a firmly united nation. The standard of living is high, and the people enjoy political and religious freedom.

LUXEMBOURG

Luxembourg is a monarchy by law, but is ruled by a duchess. The population depends for a living mainly on the iron and steel industry in and near the city of Luxembourg. Most people speak French or German, and they are generally well educated and prosperous. The country has an agricultural area and grows some of the food for the population of about 300,000 persons.

The Northern Nations

GERMANY

Modern Germany as we know it today grew out of a group of small political units. By 1871, it was a powerful empire. Geographically, this is a country of great variety.

Central Germany, in the Continental Industrial Region, contains some of the richest mineral resources of Europe. The northern part of the country is in the North Sea-Baltic Plain. Part of southern Germany belongs geographically to the Alpine Lands. A network of rivers and canals through all these regions provides outlets to all the seas bordering Europe.

World War I was brought on in 1914 when the Germans joined with the Austro-Hungarians to invade Belgium. The United States later took sides with the Allies against the German and Austro-Hungarian empires, which were defeated. German losses

in this war were staggering. One eighth of the territory held by the German Empire in 1914 and one tenth of the German population were taken over by France, Poland, and Denmark.

A German republic was set up in 1919. Gradually, the German nation recovered from the war, but the people were bitter about their defeat. They longed to avenge their losses, and in 1939 Germany again involved the world in war. Six years later, German power was crushed, and the people were forced to surrender.

After World War II, Germany was divided into four zones of occupation under the control of the United States, France, Britain, and the Soviet Union. Berlin, the capital, was in the Soviet Zone, but the city was also divided into four zones.

The four great powers agreed to reunite Germany and set up a new government. The Soviet Union refused to cooperate with the other powers, however. As a result, two German governments were established. The three western sections adopted a constitution and became the German Federal Republic or West Germany. The Soviet Union formed a Communist government called the German Democratic Republic in East Germany.

You read in Chapter 15 that the East German government built a wall across the city of Berlin. This wall was to keep people from escaping to West Berlin. Great hardships have resulted for men and women who work or have business on one side of the wall and live on the other. Families have been divided and the wall has caused tragedies in the lives of many people.

West Germany has become a strong and prosperous nation through able leadership, hard work, and much help from the West. East Germany has not made such good progress because of the restrictions on the liberty of the people. All the industries belong to the state; in other words, they are nationalized. Foreign trade is controlled by the Soviet Union. The highly educated East German people resent the loss of their freedom and resist the teachings of communism.

CZECHOSLOVAKIA

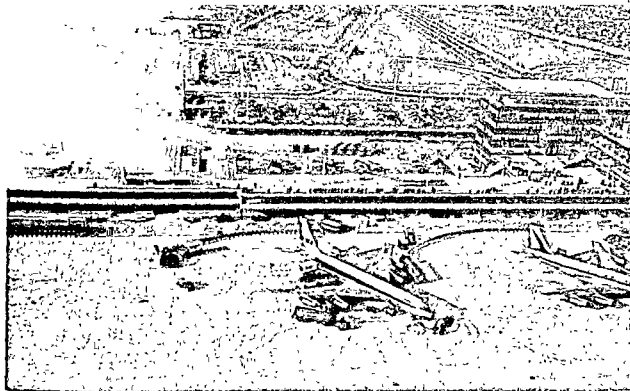
Czechoslovakia came into being as a nation after World War I. It includes a small part of Silesia and the former states of Bohemia, Moravia, and Slovakia which were part of the old Austro-Hungarian Empire.

You can see from the map that Czechoslovakia has no seacoast. The Oder River provides a waterway through Czechoslovakia and Poland to the Baltic Sea. The Czech river port of Bratislava is on the Danube.

Czechoslovakia, under a Communist government, is on good terms with the other Communist countries. As in other Commu-

The United States and West Germany are strong allies. There are many American military bases in West Germany. These American paratroopers live under good conditions at their base in Augsburg. (U.S. Army Photograph)





nist countries, the people have little or no freedom. The standard of living is low, and the proud Czechoslovakians have much to endure and little to brighten their hard lives.

People from every land arrive at this modern airport near Paris for a vacation or a business trip in Europe. (Trans World Airlines)

POLAND

For centuries, warring armies invaded Poland's plains. Lacking natural boundaries, defense was difficult. About 1795, Prussia, Austria, and Russia divided Poland among themselves. Efforts were made to destroy Polish culture and to absorb the Polish people into the conquering nations, but the Poles kept their Slavic language, their Catholic faith, and their hopes for freedom. After World War I, Poland again became an independent nation.

During World War II, Poland was invaded by the Russians from the east and the Germans from the west. At the end of this war, some German territory was handed over to Poland. In return Poland agreed to give a large section of its eastern territory to the Soviet Union.

You have studied Poland in two geographic regions: the North Sea-Baltic Plain and the Continental Industrial Belt. The south-eastern corner is cut by the Carpathian Mountains. The word Poland means land of the plain, which describes most of the country.

Poland's industrial south is important to a largely agricultural nation. Most of its potash and oil deposits were taken over by the Soviet Union when the eastern boundary shifted, but many of



the rich Silesian coal deposits came to Poland from Germany. Three of Poland's largest manufacturing centers were formerly German cities. Warsaw is the capital and largest city.

Poland's Communist government was set up in 1945 and it is kept in power by the Soviet Union. The industries have been nationalized and wherever possible the farms made into collectives or state farms. The people are noted for their courage, and they keep up a constant struggle to win back greater liberty for their nation.

The Scandinavian Nations

Norway, Sweden, Denmark, and Iceland, closely related by language and history, are all thought of as Scandinavian nations. Finland, although separate from the Scandinavian Peninsula and settled by people of entirely different language and nationality, is also considered part of Scandinavia. Denmark is in the region called the North Sea-Baltic Plain. Norway, Sweden, Finland, and Iceland are in Fenno-Scandia.

Norway, Sweden, and Denmark are constitutional monarchies with prime ministers who head their governments. Finland and Iceland are republics. All are democratic nations.

DENMARK

Denmark has few industrial raw materials but many Danes are engaged in industry. Formerly there were more farmers than industrial workers. Today, with the use of modern methods, fewer farmers can produce the same amount of food. Dairy farming is very important, and meat and dairy products are the leading exports.

Most of Denmark's trade is with England, Germany, and Sweden. Metals, fuels, lumber, and textiles are the main imports.

FINLAND

From the twelfth through the eighteenth centuries, Finland was part of Sweden. In 1809, it was united with the Russian Empire. When the Czar was overthrown in 1917, Finland proclaimed its independence. The republic of Finland is a member of the United Nations, but not a member of other Western European organizations. Because their land borders on the Soviet Union, the Finns try to remain neutral in politics.

Only about eight per cent of Finland is cultivated, but food crops are important. Forests are Finland's greatest wealth. There are some minerals, but the Finns lost the large nickel mines near Petsamo after World War II. These were taken by the Soviet Union when it moved its boundary west to the border of Norway, which cut Finland off from the nickel mines and the Arctic Ocean.

The Finns are a brave and determined people who value their independence and want to live at peace with their neighbors.

SWEDEN

Sweden, although a member of the United Nations, remained neutral in the two world wars. It is a prosperous, progressive nation, and the people enjoy a good standard of living.

Agriculture is centered in the southern plains, the climate and rugged terrain of northern Sweden being unsuitable for farming. Swedish farmers are efficient and up-to-date.

More than half the people depend on manufacturing for a livelihood. The iron and steel industries rank first in the number of men employed, but the wood and paper industries are also important.

Exports of wood, paper pulp, and machinery go to Britain, West Germany, and Norway. Fuel and textiles are the main imports.

NORWAY

Norway was ruled for years by either Denmark or Sweden. In 1905 it broke away from Sweden and elected a king who ruled until his death in 1957. His son, the present king, rules a contented, democratic nation. Norway was occupied by the Germans for five years during World War II, and this experience increased the

people's love for their present liberty and independence. The people are hard-working, and their standard of living is high.

Since Norway is mainly a barren and mountainous country, agriculture is limited to the deep narrow valleys and small plains around the fiords and lakes. Less than one tenth of the land is suitable for cultivation. The Norwegians cannot grow enough to meet even the needs of the sparse population.

Forestry and fishing provide a great part of the national income. In 1957, timber and timber products were more than one fifth of the country's total exports. As many as 100,000 persons are employed in the fishing industry. Manufacturing is based mainly on these two resources. Hydroelectric power from the swift-flowing rivers supplies the needs of most industries.

Usually, Norway's imports exceed its exports. Part of the money to pay for the imports comes from the large Norwegian shipping companies which carry freight all over the world.

ICELAND

Iceland was first settled in A.D. 874, and enjoyed independence for more than three centuries. In the thirteenth century, the country came under the rule of Norway and later under Denmark. Though recognized as a sovereign state in 1918, Iceland did not attain complete independence until 1944. The voters then decided on a republican constitution and elected a president.

About one third of the Icelanders are farmers. Fisheries are a valuable source of income, but they employ only about one sixth of the population. Fish and fish products are the main exports. Machinery, foods, fuels, and raw materials for industry are the most important imports.

Reykjavik, with a population of 62,000 persons, is the capital city of Iceland.

Nations of Southeastern Europe

YUGOSLAVIA

When the Austro-Hungarian Empire was broken up after World War I, the old provinces of Croatia and Slovenia were united with Serbia and Montenegro to form a new nation which today we call Yugoslavia.

Yugoslavia was invaded and occupied by German and Italian troops during World War II. The Yugoslavs, unhappy as a subject people, organized many political groups to try to regain independence. When Germany was defeated, the Soviet Union helped the Yugoslav Communist Party take over control of the government.

The Communist government took over all Yugoslav industry and began a system of collective farms. But the political situation in Yugoslavia did not develop in the same way as in other countries under Communist control. The Yugoslavs refused to give their resources to the Soviet Union while other Communist nations in Europe were forced to do so. Yugoslavia is free to trade with other nations, and the government is making a great effort to increase industrialization. Within the country there is still widespread resistance to communism. The Catholic Church remains strong in the northwest.

Nearly all the Yugoslavs are agricultural workers who live in small villages in the river valleys. The farmers have resisted the collectivization of farms, and in many areas the government now permits private ownership of up to 25 acres of land.

BULGARIA

In the nineteenth century Bulgaria was recognized as a dependent kingdom within the Turkish Empire. It declared its independence in 1908, but the country could not live in peace. In both world wars Bulgaria fought against the Allies. The Soviet Army overpowered the nation during World War II. The monarchy was overthrown and a Communist People's Republic was set up. Firm control is still exercised by the Soviet Union. Many people who opposed communism have been executed. Church groups are not permitted to have schools or youth organizations. Hospitals and other social services are run by the state. All the farmers have been forced to put their land together and work it as large collective farms.

Most Bulgars work on the land. All industries in Bulgaria are owned by the government. The first large blast furnace in the country was built in 1957. Many of the people are craftsmen skilled in their own cottage industries, but they are not trained for modern factory work.

Rivers have been dammed to provide more irrigation water for the land and power for industry. Greater use is being made of the fine forests. Valuable ores and some salt are mined, and oil wells are being worked. Most of the minerals are shipped to the Soviet Union and do not enter the world market.

ROMANIA

Romania, another Communist state, has the official title of the Romanian People's Republic. The Romanians speak a language that is very different from the Slavic tongues of the neighboring peoples. When the Communists came to power, Romanian Catholics had 5 bishops and over 800 priests, but they are not allowed

Serbia is no longer an independent nation but the traditions and customs of the Serbian people have become part of the culture of Yugoslavia. (Thomas Cook & Son)



to communicate with Rome or to carry out their duties. Romania, therefore, is another part of the Church of Silence.

There is a strange contrast in this country. The people are poor and backward, but the country has rich natural resources. There are large deposits of oil and other minerals as well as valuable forests. But the resources have not been used efficiently. Development has been slow because of poor transportation, lack of capital, and shortage of skilled workers.

Bucharest, the capital, has the only international airport in the country. There are few good roads or railroads. Pipelines carry the oil from the rich deposits at Ploesti to the Black Sea for shipment. The Communist government, with aid from the Soviet Union, is trying to develop the country. The oil fields are of major importance to the Soviet Union.

Eighty per cent of the Romanians are farmers who live in small rural villages. The best farm land is on the plains that slope down to the Danube Valley.

HUNGARY

Hungary was a well-established kingdom when its King Stephen became a Christian in the year 1000 A.D. Since then, Hungarians have been strongly devoted to the Catholic Church and to their ancient kingdom. The boundaries have often been changed by invading armies who attacked the nation and sometimes conquered it for short periods. Between these periods the nation enjoyed independence. For many centuries, Hungary and Austria were ruled by the same royal family and together they composed the Austro-Hungarian Empire. When that empire fell after World War I, Hungary again became a separate state.

After Hungary's defeat in World War II, a Soviet army occupied the country. The Communist Party took control, and a People's Republic was established.

Resentment against their treatment led the Hungarians to rebel in 1956. For a brief time, it appeared that they might overthrow their Communist government, but the Hungarian rebels were eventually crushed and Communist rule imposed once more.

Because Hungarians are allowed to trade only with Communist nations, the country has lost its former Western markets and its free contacts with Western nations. The resistance of the Hungarians to Communist control and the loss of so much of their foreign trade have weakened the nation and saddened its people.

Now you have come to the end of the last chapter of your geography book. You have learned about landforms, water bodies, natural resources, climate, and man-made features. You have studied the lives of the people and discovered some of the things that unite them to form nations. You have seen nations progressing in freedom and others held back by lack of liberty, education, and resources. But the reason for studying geography is not to memorize all the facts in this book even if you could or wanted to. Instead, look at it this way. Above all nations is mankind. And above mankind is God. Surely it is the wish of God that we heed the teachings of His Son and live in love and peace.

Geography can help us. We can use our minds, God's greatest gift, to understand why people and nations behave as they do. And when we understand why, we can come closer to living as God intended.

The most important aim of the United Nations is to maintain world peace.
(United Nations)

GLOSSARY

Alluvium Soil deposited by a stream, mostly during floods. In some instances, a swiftly moving mountain stream coming down to a plain deposits the alluvium it is carrying. A gently sloping, fan-shaped piece of land is built up. This is called an *alluvial fan*.



Arable land Land that can be cultivated by plowing or tilling.

Archipelago A group of islands in a large body of water. Sometimes the body of water is called an archipelago.



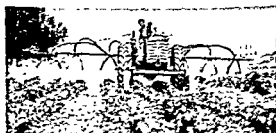
Bog An area of land having poor drainage, and filled with decaying vegetation. In some places, peat is formed in bogs. Examples are the peat bogs of Ireland and Germany.



Climate Varying pattern of temperature, wind, precipitation, and sunshine found in an area. The marine west coast climate has mild winters and cool summers, with plenty of rainfall at all seasons. The continental climate has cold winters and hot summers; more than half the rain falls in summer. The Mediterranean climate has warm or hot summers and mild winters; there is rainfall in the autumn and winter, but little in the summer. The desert climate is very hot in summer and warm in winter. It has rain at very infrequent and irregular intervals.

Collective farming A system of farming in which a vast area of farm land is cultivated by many families. Each family has its own home and small plot of land, but the people spend most of the time working on the huge farm. Farm equipment is rented from the government. The kinds of crops and the farming methods to be used are regulated by the government. The government fixes the prices of each year's crops and the quantities of the crops it will buy. The rest of the harvest is divided among the farm families.

Conservation The protection, care, and wise use of natural resources such as water, minerals, and forests.



Delta A flat stretch of land at the mouth of a river. It is formed by the alluvium that the river deposits as it flows into a large body of water. Large deltas, such as those of the Rhine River or the Nile River, provide valuable farming land.

Desert A place where little or no vegetation grows because of lack of sufficient moisture. Deserts can be either sandy, rocky, or gravelly.



Distributary A branch channel formed by a river which flows away from the main stream.



Divide A narrow upland that separates two drainage basins. It is usually an irregular band of the highest land in the area. During a rainfall the water flows down both sides of the divide toward each basin. Rivers will therefore flow in opposite directions on either side of the divide.

Drainage basin All the land that is drained by a major stream and its numerous tributaries. One drainage basin is separated from another by a divide.

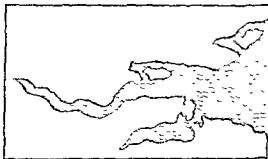
Dry farming A system of farming used in semiarid regions to produce crops without irrigation. The land may be allowed to lie fallow in alternate years. During this time it is plowed to keep the topsoil loose. This allows the moisture to penetrate to the subsoil and be preserved there.

Economy The material structure of a country or region, including its natural resources, whether utilized or not; the human ability of the people who live in the region; and the capital invested. An economy may be called primitive, agricultural, or industrial depending upon which aspect of development of the area predominates.

Erosion The wearing away of the surface of the earth by water, wind, and other agents. Man is often responsible for soil erosion, because he removes the natural vegetation that holds the soil in place. This is done by land clearing, burning, or excessive grazing of livestock on steeply sloping land.



Estuary A wide tidal mouth of a river where sea water and fresh water meet.



Farm cooperative A group of farmers who together buy large quantities of needed goods at reduced prices, thereby lowering the expenses of each farmer. The farmer sells his produce through the cooperative. Profits are shared among the farmers in proportion to the quantity and quality of the produce each farmer contributes. The cooperative also buys tractors and other farm equipment for all members to share. In this way farmers are able to use equipment that would be too expensive for them to buy individually.

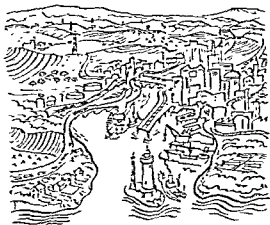
Fjord A long, narrow inlet of the sea between high cliffs. Fjords were formed during glacial times, when the ice scooped out and deepened river valleys so that the lower ends were filled by the sea. Fjords are deep and large ships can sail through them.



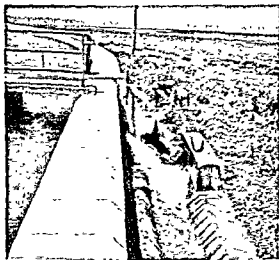
Glacier A slowly moving field or body of ice. It is formed by great accumulations of snow in a region where the rate of fall is greater than the rate of melting. Today glaciers are found either in the polar regions or in very high mountains. At one time a glacier covered the northern parts of North America, Europe, and Asia.



Hinterland The area near a port or around a large city. It supplies the port with products to be shipped and provides a market for products entering the trade area of a city.



Irrigation The artificial watering of farm lands to bring moisture to plants. Irrigation by canals usually involves the building of a dam across a river; this is often done at a place where the river leaves the mountains and flows into a valley. The water stored up behind the dam is led by canals to the fields. Irrigation by wells brings underground water to the surface.

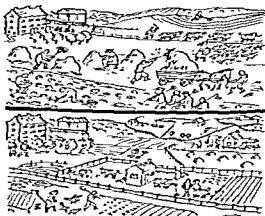


Humus The material formed by decaying vegetable matter. It helps to make fertile soil.



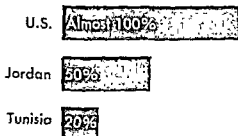
Heavy industry Industry engaged in the manufacture of goods that require raw materials that are bulky and weighty. Heavy machinery, locomotives, and automobiles are examples of heavy industry.

Land reform In some countries, large tracts of land have been held by a small number of wealthy people. The poor have worked on this land as tenant farmers. Efforts have been made by governments to make it possible for the poor to buy land belonging to the large estates and thereby own their own farms. This is called land reform.

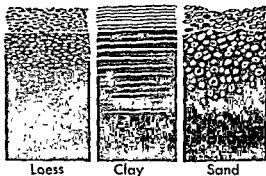


Light industry Industry in which lighter-weight materials are handled. Examples of light industry are food processing, the manufacture of textiles, clothing, furniture, chemicals, etc.

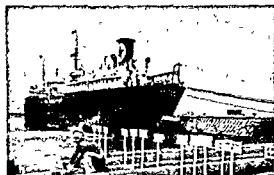
Literacy rate The percentage of people in a country who can read and write.



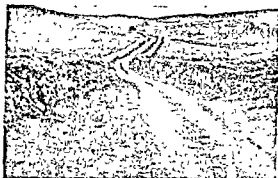
Loess A fine yellow-brown soil carried from a dry area by the wind and deposited at a great distance. Loess is very fertile soil and makes good farm land.



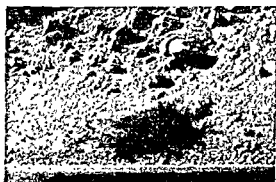
Merchant fleet A general term used to describe ships that carry cargo or freight for trade.



Moorland An uncultivated upland covered with heather or other low shrubs. Moorlands are found in the British Isles. Similar areas in Germany or the Netherlands are called geestlands.



Moraine belt A series of ridges made up of a mixture of clay, gravel, and boulders deposited by a glacier as it melted.



Nation (See state)

North Atlantic Drift A current of warm water that flows across the North Atlantic Ocean from the Gulf of Mexico in a northeasterly direction. The warm waters of this stream moderate the climate of the countries of northwestern Europe.



Peninsula A piece of land almost surrounded by water, but connected to a larger body of land on *one side*.

Plain A flat, level, or gently rolling stretch of land. A plain that borders on a lake is called a lake plain. One that borders on an ocean, sea, or gulf is called a coastal plain. A plain formed by loess, a very fine fertile soil, is called a loess plain.

Plateau A flat stretch of land high above sea level that rises abruptly, at least on *one side*, from the surrounding lowlands or the sea.

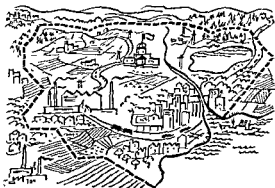
Polder Land below sea level that has been reclaimed from the sea by means of dikes, drainage canals, and pumps.

Population density The average number of people living on a square mile in a particular place.

Precipitation Any deposit of water from the atmosphere, whether liquid or solid. This includes rain, snow, hail, and dew.

Reforestation The planting of new trees to replace a forest that has been cut down or destroyed.

State A self-governing group of people and the land they occupy. Sometimes a state is made up of *one national group* or nation that governs itself. Other states may include more than one national group. A nation is a group of people whose common customs and traditions have made them feel that they belong together.



Strait A narrow neck or channel of water between two bodies of land. A strait connects two bodies of water.

Subsoil A layer of soil lying below the surface or topsoil. Subsoil is *less fertile* than the topsoil, but the roots of trees and of some plants penetrate down to it.

Topsoil The surface portion of the soil which is usually best for growing crops.

Tributary A stream that flows into a larger stream or river.

Wadi A steep-sided river bed in an arid region, dry except in a rainy season.

Water table The underground level at which the earth's crust is permanently saturated with water.



Runoff That portion of the water or melted snow which finally reaches the streams or drainage area. It consists of the water which flows off the surface instead of sinking into the ground, together with some of the water which sank into the ground and then seeped through to the stream.

Index

Note: The numbers in italic indicate a photograph.

A
 Abadan [ah ha dahn'], Iran, 195
 Acropolis, 90
 Adana [ah' dah nah] Plain, 97
 Aden [ah' d' n], 184
 Adriatic Sea, 39
 Aegean [uh jee' un] Islands, 46, 86-87, 90, 91
 Aegean Sea, 46, 94
 Albania, 85-86
 Aleppo, Syria, 191
 Alexandria, Egypt, 170, 178
 alfalfa, 156
 Algeria [al jee' ee ah], 40, 48 107, 110-11
 Algiers [al jeez'], Algeria, 111
 alluvial fan, 46
 alluvial plain, 46
 alluvial soil, 46, 128, 136, 173
 alluvium, 46, 173, 371
 Alpine Lands, 232-45
 alpine meadow, 216
 Alps, 63, 203, 204, 234, 235, 243, 266
 aluminum, 238, 251
 Amman, Jordan, 187
 Amsterdam, the Netherlands, 272
 Anatolian Plateau, 46, 95
 Ankara [ahn' kah rah], Turkey, 97
 Antwerp, Belgium, 279
 Apennine Mts., 47
 Aqaba [ah' kah bah], Jordan, 187
 Aqaba, Gulf of, 188
 aqueducts, 32
 Aquitaine [ack' we tane] Basin, 296, 306-11
 Arabian Desert, 120, 123, 126, 153
 Arabian horses, 131
 Arabs, 145, 169, 193
 archipelago, 90, 374
 Arctic Circle, 322
 Arid Lands, 118-96
 artesian well, 131, 134-36
 asbestos, 92
 Asir, 179, 180
 Aswan Dam, 156, 173, 178
 Athens, Greece, 90

Atlas Lands, 107-17
 Atlas Mts., 38, 48
 atomic power, 224
 attar of roses, 253
 Austria, 232, 241-44, 363
 avalanche, 233
 Azizia, Libya, 123

B

Baghdad [bag' dad], Iraq, 192, 194
 Bahrain [bah rain'], 185
 Balearic [bal ee air' ik] Islands, 73
 Balkan Peninsula, 246-57
 Baltic Sea, 205, 322
 Baltic Shield, 318-20
 Baluchi, 142
 Barcelona, Spain, 62, 70, 205
 barrier beach, 283
 Basel [bah' zel], Switzerland, 232, 239
 basin irrigation, 156
 bauxite, 238, 251
 Bavaria, 266-67
 Bedouins, 131, 133, 142, 146, 187
 Beersheba, Israel, 104
 Beirut [bay root'], Lebanon, 101
 Belfast, N. Ireland, 354
 Belgium, 221, 260, 270, 278-79, 364-65
 Belgrade, Yugoslavia, 255
 Benelux nations, 364. *See also*
 Belgium; Luxembourg; the
 Netherlands
 Benghazi [ben gah' zee], Libya, 168
 Berbers, 107, 110, 139, 145, 168
 Bergen, Norway, 206, 211, 325
 Berlin, Germany, 211, 290-91
 Bern, Switzerland, 234, 235, 240, 241
 Bethlehem, Jordan, 188
 Bible, 44, 49
 Biblical geography, 106, 188
 Birmingham, England, 349
 Biscay, Bay of, 69, 202, 310
 Bizerte [beh zert'], Tunisia, 114

Black Sea, 50, 94, 198, 246
 Bohemian Basin, 261-65
 Bohemian Plateau, 263, 264-65
 Bonn, Germany, 278
 Bordeaux [bor doh'], France, 310-11
 Bosphorus [bos' fo rus], 94, 98
 Bothnia, Gulf of, 318
 Bremen [bray' men], Germany, 291
 Bremerhaven, Germany, 291
 Brest, France, 312, 315
 bridgeland, 21-35, 172
 Britain. *See* United Kingdom
 British Isles, 334-56, 363-64
 Brittany, 296, 312-16
 broadcast seeding, 169
 Brussels, Belgium, 221
 Bucharest [boon ker est'], Romania, 256
 Budapest [boon da pest'], Hungary, 250, 254-55
 Bulgaria, 246-54, 256, 371
 Byblos, 26

C

Cadiz, Spain, 27
 Cairo [ky' roh], Egypt, 121, 177-79
 caiques, 89
 camels, 129, 130
 Canaan, 25
 canals:
 Egypt, 177
 France, 301
 Germany, 291
 Greece, 86
 polderlands, 289
 Venice, 83
See also Suez Canal
 Cannes [can], France, 78
 Cantabrian Mts., 47, 69
 cantons, 235
 caravans, 153, 177
 Carcassonne [car kah sohn']
 Gateway, 311
 Cardiff, England, 351
 Carpathian Mts., 203, 246

Carthage, 27. *See also* Tunis
 Casablanca, Morocco, 109
 Caspian Sea, 195
 catacombs, 35
 Celts, 313, 338
 Central Highlands, 262-68
 Central Lake District, Sweden, 327, 328
 Champagne [sham pane'], 299-300
 Chartres [shar' thr], 34
 Christianity, 12, 31, 33, 49-50, 73-74, 188, 251, 339
See also Biblical geography;
 Vatican City
 citrus fruit, 57, 82, 92, 171
 city-states, 28
 climate:
 definition, 16, 374
 alpine, 232-33
 arid, 17, 118, 121-26
 humid continental, 211-12, 261, 321-23
 marine west coast, 206-11, 261, 322, 336
 Mediterranean, 17, 38, 40-43, 54
 subarctic, 212, 323
 coal:
 British Isles, 344, 347-48, 351
 Continental Industrial Region, 260, 264, 275, 276, 277, 278, 279
 European Coal and Steel Community, 226-27
 coffee, 183
 collective farming, 249, 286, 360, 374
 Cologne [kuh lohn'], Germany, 278
 Columbus, Christopher, 16, 66
 Common Market, 228. *See also*
 European Coal and Steel Community
 conservation, 59-60, 104, 107, 108, 214, 310, 374
 Constantinople. *See* Istanbul
 Continental Industrial Region, 259-81
 cooperative farming, 103, 108, 287
 Copenhagen, Denmark, 291, 292
 copper, 73, 92, 331
 Corinth, Greece, 87
 cork, 44, 57, 108, 113
 corn, 243

Costa Brava [koss' tuh brah' vuh], Spain, 70
 cotton, 151
 cradle of civilization, 20
 Crete, Greece, 50, 91
 Crusades, 33
 Cyprus, 50, 92
 Cyrenaica [sir eh nay' eh kah], Libya, 50, 168
 Czechoslovakia [check uh sloh vak' ee uh], 261, 262-65, 366

D

dairying:
 Austria, 242
 Denmark, 287
 France, 298, 308, 316
 Scotland, 343
 Switzerland, 235-36
 Damascus, Syria, 191
 Danube River, 240, 244, 246, 252
 Danube River Basin, 248-51
 Dardanelles, 94
 date palms, 132, 150, 152
 Dead Sea, 190
 Denmark, 200, 283-84, 286-88, 292, 369
 deserts, 117-38, 374
 Arabian, 120, 123, 126, 153
 Negev, 102, 104
 Sahara, 48, 120, 123, 124, 126, 153
 Syrian, 120, 153
 desert oases, 147-52
 desert pavement, 128
 dhows, 186
 dikes, 284, 289
 donkeys, 131
 Dover, Strait of, 334
 drowned estuaries, 284
 Dublin, Ireland, 355
 Dusseldorf, Germany, 276, 278

E

East, the, 360
 East Germany, 261, 290, 366. *See also* Germany

Edinburgh [ed' n ber oh], Scotland, 344
 Eiffel Tower, 302, 305
 Egypt, 22-24, 156, 161, 166, 172-78
 Elbe [el' beh] River, 205, 265, 291
 Elburz Mts., 194
 El Azhar University, 177
 England, 345-53
 English Channel, 200
 erosion, 59-60, 107, 195, 375.
See also conservation
 estuary, 202, 284, 337, 375
 Etna, Mount, 47, 82
 Euphrates [yoo fray' tee] River, 20, 21, 24, 152, 191
 Eurasia, 11, 12
 Euratom, 228
 European Atomic Energy Community.
See Euratom
 European Coal and Steel Community, 227
 European Economic Community.
See Common Market

F

Faiyum [fay yum'] Oasis, Egypt, 176
 farming
 crop, 235
 dairy. *See* dairying
 dry, 8, 112, 146, 150, 195, 375
 oasis, 150, 170
 strip, 299
 subsistence, 57, 110, 249, 341
 feluccas, 135, 173
 Fenno-Scandia, 318-33, 368-70
 Fens, the, 347
 Fertile Crescent, 190
 Fezzan, Libya, 168
 Finland, 318-24, 329-31, 369
 Firth of Clyde, 344
 fiord, 320, 325, 334, 375
 fishing, 61, 89, 108, 315-16, 325
 Flanders, 271-72, 278, 279
 Florence, Italy, 65
 flax, 271-72, 354
 forests, 59-60, 242, 264, 265, 266, 321, 330

France, 77-79, 260, 278-79, 294-317, 361-62
 Franco-Belgian Industrial area, 278-79
 Frankfurt, Germany, 267
 French Riviera. *See* Riviera

G

Gallivare, Sweden, 327, 329
 Galway, Ireland, 355
 Garonne River, 78, 205
 Gdansk [g' dahnsk], Poland, 292
 Gdynia [gah din' ya], Poland, 292
 Geneva, Switzerland, 239-40
 Genoa, Italy, 82-83
 German Democratic Republic. *See* East Germany
 German Federal Republic. *See* West Germany
 Germany, 260, 263, 266-68, 274-78, 283, 290-91, 365-66
 ghibli, 169
 Gibraltar, Strait of, 12, 27, 33, 37, 48, 198
 glacier, 206, 284, 320, 334, 375
 Glasgow, Scotland, 344
 glassmaking, 264, 278
 Glomma Valley, 320
 goats, 59, 97, 131
 Golden Horn, 95, 98
 Goteborg [yuh' teh bohrg], Sweden, 327
 grapes:
 Algeria, 111
 Danube River Basin, 249
 France, 78, 300, 309
 Germany, 267, 268
 Greece, 29, 87
 Mediterranean Lands, 57
 Grasse [grahss], France, 78
 Great Britain. *See* United Kingdom
 Great Sphinx, 22
 Greece, 28-31, 56-91
 Greenwich [gren' idge], England, 353
 ground water table, 133
 Guadalquivir [gwah dahl keh veer'] River, 70
 Gulf Stream, 209. *See also* North Atlantic Drift

H

Hadi [Ha' gee], 141
 Haifa [hi' fah], Israel, 105
 Hamburg, Germany, 291
 Hasa, 179, 180
 Hebrews, 25
 Hebrides Islands, 334
 Hejaz, 179, 180
 Helsinki, Finland, 211, 329
 Hofuf [ho foof'], Saudi Arabia, 152, 182
 humus, 45
 Hungarian Plain, 205, 246, 248, 249, 265
 Hungary, 246-55, 372
 hydroelectric power:
 Austria, 239, 244
 Egypt, 176
 France, 311
 Ireland, 354
 Italy, 63, 64, 81
 Norway, 326
 Spain, 63
 Switzerland, 237-39

I

Iberian Peninsula, 68-77, 198
 Iceland, 370
 Ile de la Cité [eel de la see tay']. *See* Paris
 Industrial Revolution, 223, 345-47
 Iran, 160-61, 194-95
 Iraq, 24-25, 192-94
 Ireland, 339, 353-55, 363-64
 iron:
 Austria, 244
 Lorraine, 278
 Ruhr, the, 260, 276
 Sweden, 327, 329
 Tunisia, 113
 Iron Gate, 246, 252
 irrigation, 52-54, 154-58
 definition, 376
 Egypt, 156, 173
 Iraq, 192
 Israel, 52, 104, 189
 Jordan, 187
 Libya, 52, 169
 Morocco, 108

Syria, 191
 Isfahan [iss' fuh hahn], Iran, 195
 Islam, 33, 95, 109, 141-42, 167, 182, 251
 isotherm, 41
 Israel, 102-6
 Istanbul [iss tahn bool'], Turkey, 97-98
 Italy, 46, 47, 63, 80-83

J

Jerusalem, Israel, 105
 Jerusalem, Jordan, 187, 188
 Jiddah, Saudi Arabia, 180, 182
 Jordan, 105, 187-90
 Jordan River, 187, 188
 Jotunheim [yo' ten hame] Mts., 320, 323

K

Karlsbad, Czechoslovakia, 265
 Kayseri, Turkey, 97
 Kent, England, 347
 kibbutz, 103
 Khabur River, 191
 Kiel Canal, 291
 Kirkuk, Iraq, 183
 Kiruna, Sweden, 327, 329
 Kjolén [choo' len] Mts., 320, 323
 Koblenz, Germany, 268
 Korn, 33, 177
 Kurds, 142, 193
 Kuwait [koo wyte'], 185-86

L

Lake Plateau, Finland, 331
 Lancashire, England, 350
 land reform, 160-61, 376
 Landes [lahnd], 310
 Lapland, 218, 329
 La Rochelle, France, 206
 Latakia [lah tah kee' uh], Syria, 191
 latitude lines, 18, 17
 Lebanon, 99-101
 Lebanon Mts., 27, 99
 Le Havre [leh bah' vr], France, 301

Libya, 168-72
 lignite, 275
 Lippee River, 276
 Lisbon, Portugal, 76
 Liverpool, England, 350
 livestock raising, 57-59, 112, 211
 locusts, 192
 loess plain, 259, 269-73, 283
 Loire [le wahr] River, 205, 306, 308
 London, 352-53
 Londonderry, Ireland, 354
 longitude lines, 16, 17
 Lorraine, 260, 278, 278
 lumbering:
 Austria, 242
 Balkan Peninsula, 253
 Central Highlands, 262, 265, 266
 Fenno-Scandia, 321, 325, 326
 Switzerland, 237
 Luxembourg, 260, 265, 278

M

Madrid, Spain, 73
 Magellan, Ferdinand, 16
 Maghreb [mu grib], 40
 Majorca, Spain, 73
 Malta, 50, 200
 Manchester, England, 350
 Mannheim, Germany, 268
 Maritime France, 296, 312-16
 Maritsa River, 94
 market gardening, 299, 314, 316, 347
 marl, 256
 Marmara, Sea of, 94
 Marne River, 297, 301
 Marrakech [mar ra kesh], Morocco, 109
 Marseille [mahr say], France, 27, 79
 marshes, 49, 60, 99
 Massif Central, 47, 204
 Mecca, Saudi Arabia, 141, 144, 167, 180
 Mediterranean Lands, 38-116
 Mediterranean Sea, 20, 61, 176
 meridians. *See* longitude lines
 Meseta [meh say' tab], 46, 69, 70
 Mesopotamia, 20, 24-25. *See also* Iraq
 Midi, 77-79
 Midlands, England, 349

midnight sun, land of, 322
 Milan, Italy, 65
 Minoans, 27
 mocha, 183
 Monaco [mon' uh koh], 27, 79
 moorland, 215, 285, 377
 Moors, 33
 moraine belt, 284, 377
 Morava River, 352
 Morocco, 40, 48, 107-9
 Moselle River, 278
 Mosul, Iraq, 193
 Munich [myoon' ik], Germany, 267
 Muslim. *See* Islam

N

Nantes [nahnt], France, 308
 Naples, Italy, 62
 nationalism, 357
 naval stores, 77, 310
 Nazareth, Israel, 102, 105
 Negev, 102, 104
 Negroes, 138, 145
 Nejd, 179, 180
 Netherlands, the, 260, 272, 283-84, 286, 288-89, 364-65
 Newcastle, England, 348-49
 Nile Delta, 174, 177
 Nile River, 22-24, 135, 136, 151, 172-76
 nomads, 139-40, 142-46
 Normandy, 316
 Norrland, 328-29
 North Atlantic Drift, 207-08, 211, 312, 377
 Northern Ireland. *See* United Kingdom
 North Sea, 202, 292
 North Sea-Baltic Plain, 283-93
 Norway, 318-26, 369-70

O

oases:
 definition, 133
 desert, 133, 147-52
 river, 151-52, 154-58
 springs and wells, 133-36
 stream, 136
 Oder River, 205

oil. *See* petroleum
 oil pipelines, 153, 191
 oil refineries, 184, 195
 Oise River, 297
 olives:
 Greece, 29, 88
 Mediterranean region, 44, 56-57
 Tunisia, 112, 113
 Olympic Games, 29, 31
 Oman, 184
 "Operation Plow," 108
 "Operation Tree," 107
 Ore Mts., 265
 Orkney Islands, 334
 Oslo, Norway, 326
 Outokumpu, Finland, 331

P

Palermo [puhler' moh], Italy, 62
 Palestine, 25. *See also* Israel, Jordan
 papyrus, 24, 27
 parallels. *See* latitude lines
 Paris, France, 300-5
 Paris Basin, 294, 296-305
 Parthenon, 90
 peat, 215, 354
 Peloponnesian Peninsula, 86
 Pennine Mts., 334, 347-48
 penstock, 238
 perennial irrigation, 156
 perfume industry, 78, 253
 Persia. *See* Iran
 Persian Gulf, 152, 185
 petroleum:
 Algeria, 111
 Austria, 244
 Bahrein, 185
 desert, 153, 164
 France, 310
 Iran, 195
 Iraq, 193
 Kuwait, 185
 Libya, 171
 Romania, 251
 Saudi Arabia, 164, 182
 Phoenicians, 27, 99
 phosphate, 62, 113
 Piraeus [pyree' uss], Greece, 90
 Pisa, Italy, 46
 plankton, 61

Ploesti [ploh yesht'], Romania, 251
 Plovdiv, Bulgaria, 356
 Po River Valley, 47, 51, 63, 81
 Poland, 261, 274, 275-76, 283, 286,
 292, 367-68
 polder, 288-89, 378
 population:
 Arid Lands, 146, 174
 Europe, 80, 81, 218-21, 265, 318,
 355
 Mediterranean Lands, 66, 80, 81
 Port Etienne, Mauritania, 121
 Portugal, 74-77
 potatoes, 225, 286
 Power Belt, 260-61
 Prado of Madrid, 70
 Prague [prahg], Czechoslovakia, 265
 Prime Meridian, 17, 353
 Pripet Marshes, 283
 Pyrenees [peer eh neez'] Mts., 47,
 63, 203, 205

Q

quotas and tariffs, 226, 227, 228

R

Rabat, Morocco, 109
 railroads, 64, 153, 176
 rainfall:
 continental climate, 212
 desert, 118, 121-22, 126
 marine west coast climate, 208,
 210, 336
 Mediterranean Lands, 41, 43, 99
 Ramadan, 141
 Red Sea, 176, 188
 refugees, Arab, 102, 187
 reforestation, 59, 104, 169, 378
 Rhems, France, 300
 Rhine delta, 272, 284
 Rhine Gorge, 268
 Rhine-Marne Canal, 301
 Rhine River, 204, 267-68, 272, 284
 Rhodes, Greece, 91
 Rhone River, 79, 204
 Rhone-Saone [rone sone] corridor,
 296, 301
 Rift Valley, 188

river oases, 151-52, 154-58
 Riviera, 77
 Riyadh [ree yahd'], Saudi Arabia,
 180, 183
 roads, 31, 64
 Romania, 246-53, 256, 371-72
 Rome, empire of, 31
 Rome, Italy, 83
 Rose Valley, 253
 Rotterdam, the Netherlands, 272
 Rouen, France, 301
 Rub' al Khali, 127
 Ruhr, the, 260, 276-78
 rye, 285-86

S

Saar, the, 278
 Sahara, 48, 120, 123, 124, 126, 153
 Saint Sophia, 98
 St. Nazaire [san neh zair'], France,
 308
 Salonika, Greece, 252
 San'a, Yemen, 183
 San Marino, 30
 sand dunes, 127-28, 283, 310
 Saudi Arabia [sah oo' dee uh ray'
 bee uh], 166, 179-83
 Saxony, 274-76
 Scandinavia, 203, 318, 369. *See also*
 Fenno-Scandia
 Scotland, 340-44
 Scottish highlands, 334, 340-42
 Scottish lowlands, 343-44
 scafarers, 27, 29, 339-40
 Seine [sane] River, 205, 301
 Seville, Spain, 70
 Shannon airport, 355
 Shannon River, 205, 354
 sheep, 59, 72, 211, 342
 Sheffield, England, 349
 sheikdom, 179, 184-86
 Shetland Islands, 334
 shipping:
 British Isles, 340
 Egypt, 178
 France, 79
 Greece, 89, 90
 Israel, 104
 Italy, 82
 Netherlands, the, 272

Norway, 325
 Sicily, 50, 82
 Sierra Nevada, 47
 Silesia, 274-76
 Sinai Peninsula, 12, 25
 sirocco, 43
 snail fever, 158
 Sofia, Bulgaria, 256
 Sogne Fjord [sawng' neh fee yohr'],
 320
 soil:
 alluvial, 46, 128, 136, 173
 desert, 128, 130
 loess, 259, 269-73, 283
 marl, 286
 soil conservation. *See* conservation
 solar still, 154
 Southern uplands, Scotland, 334, 342
 Soviet Union, 50, 195, 360
 Spain, 68-74
 steel:
 European Coal and Steel Com-
 munity, 227
 Finland, 331
 Franco-Belgian industrial area,
 278
 Great Britain, 349, 351
 Italy, 83
 Ruhr, the, 276-77
 Saar, the, 278
 Sweden, 328
 Turkey, 97
 Stockholm, Sweden, 327
 stream oases, 136
 Sudeten [soo day' ten] Mts., 265
 Suez Canal, 65, 104, 172, 176, 177
 sugar beets, 270-71
 Swansea, England, 351
 Sweden, 318-24, 327-29, 369
 Switzerland, 232-41, 363
 Syria, 172, 190-91
 Syrian Desert, 120, 153

T

Tagus River, 76
 Tamanrasset, Algeria, 123
 Tangier [tan jeer'], Morocco, 26,
 109
 tariff, 226, 227, 228
 Tehran, Iran, 195

Tel Aviv [tell ah veev'], Israel, 105
 Tell, the, 107, 110
 terracing, 60, 99 •
 textiles—
 British Isles, 342, 349, 350, 354
 Continental Industrial Region,
 263, 277, 279
 Finland, 331
 Turkey, 97
 Thames [temz] River, 205, 337, 352
 Tigris-Euphrates Valley, 136, 156,
 157
 Tigris River, 20, 21, 24, 152, 192
 Tirana [teh ray' nab], Albania, 86
 tobacco, 88, 192, 254
 Tobruk, Libya, 170
 Toledo, Spain, 73
 Toulon, France, 79
 Toulouse, France, 311
 Tours, France, 306
 trachoma, 169, 182
 trade winds, 125
 transportation problems, 48, 63, 167,
 252. *See also* shipping
 Tripoli, Libya, 168
 Tripolitania [trip aw'lih tayn' yah],
 Libya, 168, 169
 Trondheim [trawn'hun], Norway,
 325
 tulips, 289
 tundra, 214, 323, 329
 tungsten, 77
 Tunis, Tunisia, 48, 114
 Tunisia [too nish' ee uh], 40, 107,
 112-15
 Turkey, 94-98
 Turku, Finland, 329
 Tweed River, 342
 "two-story" agriculture, 54
 Tyne River, 348

U

United Arab Republic, 172
 United Kingdom of Great Britain
 and Northern Ireland, 334-53,
 363-64
 United Nations, 162, 171, 180, 373
 Ur, 25
 Ural Mts., 12

V

Vardar River, 252
 Vatican City, 83
 vegetable oils, 249
 vegetation:
 alpine meadow, 216
 desert, 120, 128
 forest, 44, 213, 214, 232, 321
 grassland, 214
 Mediterranean, 43
 moorland, 215, 285
 scrub, 45
 steppe, 17, 120, 146
 tundra, 214, 323, 329
 Venice, Italy, 83
 Vesuvius, Mount, 47, 82
 Via Dolorosa, 104
 Vienna, Austria, 232, 244
 vineyards. *See* grapes
 volcanoes, 47, 82

W

wadi, 122, 128, 133, 378
 Walachian [wah lay' kee un] Plain,
 246, 248, 249
 Wales, 347-51

Warsaw, Poland, 368
 water transportation:
 river, 167, 176, 204, 301
 sea, 49, 63, 176, 203, 340
 See also canals
 West, the, 358
 West Germany, 290, 366. *See also*
 Germany
 westerlies, 207, 208, 212
 wheat, 54-56, 212, 248, 265, 270
 windbreak, 59
 winds:
 desert, 125-126
 ghibli, 169
 northeast trades, 125
 sirocco, 43
 westerlies, 208, 209, 212
 wine:
 Algeria, 57, 111
 France, 300, 309, 310
 Germany, 267, 268
 See also grapes
 winnowing, 56

Y

Yarmuk River, 187
 Yemen, 183-84
 Yonne River, 297, 301
 Yorkshire, England, 349
 Yssel [eye'sel] Lake, 289
 Yugoslavia, 246-53, 255, 370

Z

Zanta, 29
 Zuider Zee. *See* Yssel Lake
 Zurich, Switzerland, 240